

**Understanding Language Change: Phonetics, Phonology and
Child Language Acquisition**

by

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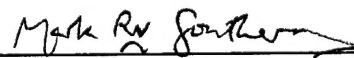
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**Understanding Language Change: Phonetics, Phonology and
Child Language Acquisition**

**Approved by
Supervising Committee:**



Mark L. Loudon



Mark R. V. Southern

Dedication

For my father, Earl W. Volk (1939-1984)

In memoriam

Acknowledgments

We pursue inquiry where it leads us. With this paper I aimed to establish a framework for further exploration into the field of linguistics. My ultimate goal was to take the reader on a journey that would bring us one step closer to understanding the varied phenomena of language and the deep mysteries of language change. As much as I am indebted to the work of contemporary linguists, I am eternally grateful to the work of our early predecessors. The pioneering efforts of those before us not only established the currents of thought leading to modern linguistic theory, but are also the primary source for my ideas on language change. Thanks to these early investigators I can wholeheartedly concur with Roman Jakobson (1949: 82) that 'we have no right to forget the magnificent contributions of earlier investigators.' I owe special thanks to Mark Loudon and Mark Southern for sparking my interest in both synchronic and diachronic linguistics. I owe particular gratitude to Mark Loudon, who I am honored to have as both friend and mentor. He has been the 'guiding light' in my scholastic efforts and the true source of any achievement I may be credited with in this paper. I must also thank my friends and colleagues. Although their names are too numerous to mention here, I have been surrounded by an amazing group of students and scholars who have in every sense been a true blessing to me over the past years. Most

importantly, I would like to thank my family for their love and support. I am especially indebted to my wife, Maja. I thank her not only for her unqualified love and support, but also for enduring the months I neglected her and our beautiful daughter, Natalie, as I worked (sometimes selfishly) seemingly endless hours to achieve my goals. Finally, to my father, to whose memory I dedicate this work. His love, guidance and the example in life he set brought me to where I am today.

Kevin M. Volk
Austin, Texas
6 May 1999

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Chapter 1: Introduction

There are, perhaps, a great many kinds of languages in the world, and no kind is without meaning. If then I do not know the meaning of the language, I shall be to the one who speaks a barbarian, and the one who speaks will be a barbarian to me.
(1 Corinthians 14: 10-11)

Language change is a phenomenon that has fascinated scholars for centuries. As a science, linguistic theory has evolved considerably during the 20th century, but the overall puzzle of language change still remains unsolved. Linguists have reconstructed proto-languages, observed and documented phonological, morphological, and syntactic change, demonstrated how languages have changed over time, and in a general sense even explained why certain language changes have occurred at certain times. What still remains a mystery however is how language change actually takes place. Whether we are talking about phonological, morphological, or syntactic change, it is difficult to identify the specific points in time where language change occurs. Unlike time-lapsed photographs of plants that provide us with a visual representation of the plant's growth, language change is something we cannot capture with the lens of a camera and see happen before our very eyes. Due to the multifaceted nature of language and the various internal and external factors that bring about change, pointing to a specific point in time where language has changed has thus far not been possible.

Although I do not expect to solve this puzzle completely with this paper, I do hope my observations will contribute to the ongoing effort of understanding the still unsolved mystery of how exactly language changes and why. Looking at established principles of language change along with language acquisition theory, I will specifically focus on sound changes in German to move closer toward this goal. In this way I hope to use sound change in German to provide answers to all types of language change.

As modern linguists we have the distinct advantage of beginning our efforts with most of the difficult work already accomplished. Years of research, data collection and analysis have provided a solid foundation on which to base our analyses. As with any science, theories are developed and tested, and success usually comes only after repeated failure. What appears at first to be a plausible theory that provides solid results by one linguist, soon may become criticized by others in the field. While it is easy today to glance back and criticize our predecessors, we must remember the adage that 'hind-sight is almost always twenty-twenty' -- what appears obvious today, was not obvious a hundred years ago. Lest we forget, the advances in linguistic theory that have evolved over the years would not have been possible without the pioneering efforts of those before us, who literally built the science of linguistics from scratch. Much like an anchor, linguists before us provided the critical foundation to our study. Each advance made is similar to the links of the chain that connect the anchor to the ship. Should one of the links break, the ship drifts without direction. Each and every link in the chain serves its purpose and each one depends upon the other. We have

direction today in linguistic theory due solely to the work of others, to those around us and particularly to those who came before us.

With this in mind, I will begin my paper with an overview of linguistic theory as it developed around the turn of the century. Using major points from earlier works in linguistic theory, I will then make the transition to more recent works to advance my observations and synthesis on language change. I will look at specific examples of how sound has changed in German, offer specific reasons for these changes, and finally use these changes as a launching point toward my attempt to move beyond pure description to an explanation of how and why language change occurs.

Chapter 2: An Overview of Linguistic Theory

The first question we should consider when reviewing the origins of linguistic thought and the currents that influenced modern linguistic theory is: why was there even an interest in language and language change? To understand this interest we need only look back through intellectual history as it developed prior to the study of language, particularly in Europe.

Religion played a dominant role in our history and even today, wars are fought over religious disputes. The Adam-and-Eve account of human origins is familiar and accepted by people, societies, and nations around the world. In Europe, where linguistics as a science originated, societies and nations were very much bound to the authority of the church and religious belief. During the Middle Ages (ca. 750-1500), kings ruled under the authority of God and nobility was seen as an extension of God's Grace. With the Reformation in the early 1500s, Martin Luther's translation of the Bible was critical in bringing religion closer to the people. Francis Bacon (1561-1626) and René Descartes (1596-1650) brought about the notions of empiricism and rationalism, and the belief that all things can be explained. This in turn heavily influenced the philosophy of the Enlightenment (ca. 1720-1785), which was effectively expressed by Immanuel Kant in 1784 with his essay *What is Enlightenment?* The individual intellect and ability to reason, along with empiricism became strong currents in European thought. These currents led finally into the period of Romanticism (ca. 1795-1835) and a fascination with the elements of nature. These gradual yet critical changes in

thinking were instrumental in the birth of modern science, and ultimately the scientific beginnings of linguistic theory.

We can perhaps turn to the period dating from the mid-18th century to the early 19th century, and label it as a turning point in our intellectual history. A God-centered world dominated by religion, shifted towards a world that became more human-centered. Science slowly replaced the church as the means to finding an explanation to the human condition. Rationalism, empiricism, and the forces of nature became the basis for explanation through laws of science. Although I have oversimplified much of our intellectual history, my intent is to merely illustrate what I feel were the strongest philosophical influences on early linguistic theory. Likewise, as I will illustrate below, the early development of linguistic theory was critical to the path that formed modern linguistic theory, and serves as the foundation to my views on language change.

2.1 A NOTE ON EARLY LINGUISTIC THEORY.

To understand language change, we need to consider not only the work of contemporary linguists, but must also understand the major influences that advanced modern linguistic theory. Too often we find ourselves studying the work of contemporary linguists without a complete understanding of the ideas that influenced their work. This in my opinion represents a danger that can lead to misinterpretation of works and a lack of understanding of the theory advanced by our predecessors. Furthermore, when we do study early works on linguistic theory, we seem to find it much easier to criticize an earlier work and consequently

miss points of merit. In my discussion below, I will attempt to illustrate how linguists overlooked some important aspects in the advancement of linguistic theory. I will also attempt for the most part to avoid negative points of earlier works and instead focus on points that I feel are valuable toward the overall advancement of linguistic study.

2.2 PHILOLOGY AND THE BIRTH OF LINGUISTICS.

During the time of the Enlightenment when Europeans were very much interested in their origins, Sir William Jones, during a visit to India in 1783, noticed the striking cross-linguistic similarities between Hindu and the Sanskrit language¹. Jones (1786) suggested that the Greek, Latin, Gothic, Celtic, and Persian languages belonged to one single family and were descendants of a single proto-language, perhaps Sanskrit itself (Seuren, 1998: 80). This discovery led to the grouping together of languages known today as the Indo-European family, and formed the basis for the reconstruction of Proto-Indo-European (PIE). During this time, reconstruction of languages was the main focus of the philologist, and little if any attention was given to general mechanisms of language change. Perhaps the most important discovery of the time was the subsequent birth of comparative philology that was advanced by the Grimm brothers in the earlier part of the 19th century. Comparative philology, which involved the comparison of cognates between languages, paved the path for the discovery by Jakob Grimm of

¹ Lecture by Professor Mark Loudon, University of Texas at Austin, 19 January 1999.

the first Germanic sound shift, known today as *Grimm's Law* (McMahon, 1996: 18)².

While comparative philology provided a new method for the study of languages, it did not provide what was considered a scientific methodology. As we will see in the next section, the study of language shifted in the 19th century and drew closer to the sciences. While the study of language, much like the fields of archeology and anthropology, helped to answer the desire for knowledge about human origin, it did not provide explanations for language change. Philologists in the 19th century began to compare the study of languages to the natural sciences, and this began the gradual shift towards modern linguistic theory. The scientific study of language began to emerge.

2.3 THE 19TH CENTURY: BEGINNINGS OF MODERN LINGUISTIC THOUGHT.

We cannot adequately discuss modern linguistic theory of the 20th century without first looking back at the 19th century and the linguistic foundation that was established in prior work. Philologists of the 19th century sought to gain a deeper understanding of the mysteries of language. Drawing upon the products of the Enlightenment, philologists belonged to one of two major camps of thinking, namely rationalism or empiricism. Rationalism was the theory that the exercise of reason, rather than the acceptance of observed fact, authority, or spiritual revelation, served as the basis for valid explanation and belief, and was ultimately

² Although the phenomenon had been noted and published earlier by Rasmus Rask (1787-1832), it was Grimm who was able to synthesize the facts into one general formulation (Seuren 1998: 83-84).

the source of all knowledge. Empiricism on the other hand, while also turning away from spiritual revelation and authority, viewed experience of the senses as the sole source of knowledge. Empirical method relied upon observation and experimentation as a means of deriving proof and verification, and it was the empirical methods of the natural sciences that philologists ultimately turned to in their studies. Turning away from what they believed were urban legends and myths, philologists sought to employ true scientific method to their study³.

Early linguistic study in the 19th century strictly focused on three particular areas. The first area was what we consider today as phonetics, the study of sounds in isolation. Linguistic study of the 19th century also dealt with phonology, the study of sounds in combination and patterns of sounds, and finally morphology, the study of how words are formed. It was not until later in the 20th century that syntax, semantics, pragmatics, and sociolinguistics entered the realm of linguistic study.

2.3.1 Wilhelm von Humboldt.

To view the beginnings of modern linguistic thought on language, we should begin with Wilhelm von Humboldt, a comparative philologist who was heavily influenced by the ideas of the Enlightenment. With nothing prior to base his work upon, Humboldt in his book On Language (1836), presented a big-picture view to the study of language.⁴ Humboldt formed the beginnings of modern linguistic theory and, in my view, serves as the foundation for all linguists

³ Lecture by Professor Mark Loudon, University of Texas at Austin, 21 January 1999.

⁴ *ibid.*

who followed him -- his work determined the course that linguistics as a science would take.

Humboldt sought to examine the diversity of human language structure and its influences on the mental development of mankind. Looking first at his overall views on language, I will begin by mentioning the points that I think are both central to his work and crucial to later linguistic thought. Language according to Humboldt is something that is not creative, but instead evolves as a reshaping of the language that preceded it. Language is never original, but something that is passed on from one generation to the next (Humboldt, 1836: 50-51). He also believed that language was very much related to nationality and race. Although unfortunate in terms of its racial implications, his views were motivated by the then-popular opinion that some languages were better than others, with the older languages being closer to a state of perfection and the more modern ones reflecting a state of continuous erosion and decay over time. The so-called superior modern languages, his native language of German being one of them, resisted decay more than some of the other inferior languages. For example, due mainly to the relatively rich morphological inflection of the languages, Latin and Sanskrit were considered superior languages of the past. In modern terms, the Indo-European languages, particularly those of Europe and the West, were "better" languages because of their relatively rich inflectional morphology, whereas languages of nations located to the East tended to be inferior languages. Chinese for example was located at the opposite end of the spectrum. It lacked inflectional morphology and was thus considered an inferior language, not as developed and advanced as the languages of the West. As Humboldt stated,

Chinese is a language consisting only of roots (63). Humboldt's belief that some languages are superior to others probably explains his rather poetic, rhapsodic and consequently sometimes obtuse style of writing⁵. In order to defend German as a language belonging to the superior ones, his writing style served to reflect and represent the points of his position towards the nature of languages. Fortunately for us, his successors were much more direct in their writing and tended to avoid nebulous prose in presenting their views. Although the thought that some languages are better than others along with the concept of language decay has no merit in modern theory, he does bring to light the concept that languages do change over time and do not survive their original state. As Humboldt states, "it is in no way probable that any truly original language should have survived to our own day in its primal form" (94). No matter what external factors that exist to restrain language change, it is a phenomenon that no spoken language in the world can escape.

In more specific terms, Humboldt viewed language as having both an individual and social aspect. The individual aspect of language involves intellectual activity and the notion that thought and language are one and inseparable from each other. He viewed this inseparable bond between thought, vocal apparatus,

⁵ Although this is perhaps a rather negative aspect of his thoughts on language, I mention it because the idea that some languages are better than others did not die with the end of the 19th century. It not only persisted, but even today prescriptivist thought prevails in many parts of the world, including in places such as Germany, France, and the United States. Using an example here in the states, many people today look down upon Black English Vernacular as an improper form of the English language, and consequently teachers in school try to correct and discourage its use, claiming it is incorrect. The fact is, however, that there is no such thing as one language being better than the next, and each language is capable of expressing the same thought. Fortunately modern linguistic theory has dispelled this myth, although popular opinion has not.

and hearing as being rooted in human nature, and consequently a characteristic of language that cannot physically be observed by the senses (54-55). In a time when empiricism was very big, the internal factors dealing with the thought and the intellect, which could not be seen, were considered non-scientific and secondary to the study of language. Although Humboldt goes through a discussion of the physiological processes involved in language (the articulation of sounds, their transmission, and reception), these individual and internal factors to language were set aside in importance to his explanation on the nature of human language. Consequently, Humboldt viewed language as a predominantly social phenomenon and accordingly directed his focus to what he considered the social aspects of language.

Directing his attention to the observable aspects of language, Humboldt thus focused on speech as a social phenomenon, and the production of sounds and words in language. According to Humboldt language consists of both an inner and outer form, as indicated in the diagram below:

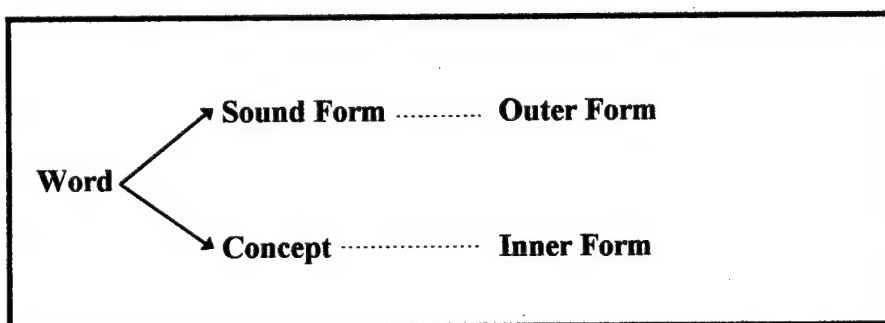


Figure 1: Inner and Outer Forms of Language

The outer form represents the sound form of language and is that which “speaks to all senses at once.” The inner form on the other hand depicts the “inner motions of the mind,” and is consequently “an operation largely inexplicable in detail.” Humboldt further claims that a connection between sound and meaning seems certain, but the relationship between the two is something which is “seldom fully stateable.” (72)

While not entirely clear with his distinction between the individual and group aspects of language, Humboldt provides an iconic explanation for language, where the outer (sound) form is logically connected to the inner (semantic) form of language. He claimed that languages are iconic in the ways that sounds are paired with meaning in three specific ways. Sounds in language form words that are either imitative, symbolic, or analogical (73-74). Concepts produced by imitative sounds are formed with words that imitate the objects they denote. A modern term used describe this aspect of language is onomatopoeia. When one hears the words *meow* or *cuckoo*, the concepts of cat and a certain type of bird (or clock) are evoked. In the same sense, iconicity between sounds and concepts can be symbolic. Humboldt provides an example with words that begin with *st-*, such as *stiff*, *stand*, and *steady*, and points out that all words such as these evoke a sense of rigidity. Likewise words such as *waft*, *wind*, and *wisp*, that begin with a *w*, create a sense of “wavering” and “uneasy motion.” Language in this sense is symbolic and iconic. Finally, the sound-concept relationship in language can also have an analogical iconicity. Words that are morphologically derived from one another belong to this category, where words with similar meanings likewise are accorded similar sounds (73-74). In English the words *stand* and *understanding*

would be considered iconic through analogy. Likewise, their German counterparts *stehen* and *Verstand* also belong to this category of iconicity. Although many examples can be given to counter his argument, Humboldt does raise the important question about the relationship between sound and meaning, or more specifically between the outer and inner forms of language, a relationship that many linguists after him have struggled to explain.

In summary, Humboldt's work led directly to the Young-Grammarian⁶ movement which I will address with the next section. I spent a relatively large amount of time discussing Humboldt however because of the implications his work has had for modern linguistic thought. In my view, Humboldt more than anyone influenced the currents that led to modern linguistic theory. The question he posed concerning the sound to meaning relationship in language raised a dilemma for future scientists, which was addressed in detail by both Ferdinand de Saussure and later Noam Chomsky. Although structuralist theory and generativist theory differ in their approaches and explanations of the relationship between the inner and outer form of languages, both still stand today as driving forces in linguistic theory. Humboldt's view that language is an organism with "direction and endeavors" influenced Edward Sapir's views on directionality in language change (91). Humboldt also addresses the innate nature of language and foresaw the role of child language acquisition in explaining language change:

⁶ Although popularly referred to as the Neo-Grammarians, the term comes from the German *Junggrammatiker*, which literally translated means young grammarians. I take issue with the term Neo-Grammarian because it implies a revised form of a pre-existing theory. On the contrary, the movement was original in terms of linguistics as a science. I therefore use the term Young Grammarian instead.

That in children there is not a mechanical learning of language, but a development of linguistic power, is also proved by the fact that, since the major abilities of man are allotted a certain period of life for their development, all children, under the most diverse conditions, speak and understand at about the same age, varying only within a brief time-span. (58)

The time span Humboldt refers to above is known today in psychology as the *critical period* for language development. Along with the implications of child language acquisition and psychology, the impact that each generation has in bringing about language change was overlooked until much later in the 20th century. Humboldt mentions that each generation produces a change in its language, that only too often escapes the eye (63). It was not until 1981 that these issues were again addressed by David Lightfoot in dealing with syntactic change. I wish to end my discussion of Humboldt with the following passage:

For language is quite peculiarly confronted by an unending and truly boundless domain, the essence of all that can be thought. It must therefore make infinite employment of finite means, and be able to do so through the power which produces identity of language and thought. (91)

In language, the infinite employment of a finite means is central to the work of Noam Chomsky and generativist theory. As Chomsky stated in 1981, Humboldt was indeed a major figure in linguistics, but his ideas only recently began to be appreciated (Chomsky, 1981: 154). Humboldt's views on language were truly revolutionary to the science of linguistics. He established the basis for modern linguistic thought and has influenced linguistic theory far into the 20th century.

2.3.2 The Young Grammarians and the Birth of Structuralism.

The Young Grammarian movement emerged approximately around 1870 and lasted through the turn of the century. As with my previous discussion of Humboldt, I feel we cannot fully understand modern linguistic theory without considering the Young Grammarian movement and the lasting impact it had upon modern linguistic science. In my discussion of this period, I will address writings by William Dwight Whitney (1867), Baudouin de Courtenay (1870), Hermann Paul (1891), and Hermann Osthoff and Karl Brugmann (1878). I will illustrate how their works led to the birth of structuralism in Europe as well as the advancement of linguistic science here in the United States. While the foundation of linguistic study lies in Europe, most of the major advances in 20th-century linguistic theory have occurred in the United States.

Beginning in chronological order, let us first discuss William Dwight Whitney (1867) and Baudouin de Courtenay (1870). Both Whitney and Baudouin de Courtenay conducted their studies geographically outside of Western Europe. Whitney spent most of his career in the United States at Yale University, and Baudouin de Courtenay worked in Russia, just south-east of Moscow.

Looking first at Whitney, he was actually the first linguist to use the term linguistic science.⁷ Although still a believer in the concept of language decline and the belief that some languages are better than others, his ideas were in many ways a turning point in linguistic theory (Whitney, 3). Although critical of comparative philology, he recognized the necessity of the work conducted by those before him,

⁷ Lecture by Professor Mark Loudon, University of Texas at Austin, 28 January 1999.

and gave credit to the comparative philologists as being the forerunners and founders of the scientific study of human language. He gives however a very broad and sometimes sketchy definition of linguistic science, but recognizes the importance of studying all aspects of language. According to Whitney, language in its entirety includes all accessible forms of speech, not only the written word from the past but also living speech that occurs in the minds and mouths of people. He also believed that all languages are worthy of study and explanation, not just a chosen few that were popularly believed to be superior to others (6). These ideas in particular went against the notions of many of his contemporaries and became central to modern linguistic theory. Studying language change, Whitney realized the innate (not hereditary) nature of language. Like Humboldt before him, he also recognized the importance of child language acquisition and the role that each generation of speakers has in the evolution of language (7-11). As Whitney states in very concrete terms:

The general answer is so obvious as hardly to require to be pointed out: we speak English because we were taught it by those who surrounded us in our infancy and growing age. It is our mother-tongue, because we got it from the lips of our mothers; it is our native language, inasmuch as we were born, not indeed into the possession of it, but into the company of those who already spoke it, having learned it in the same way before us.
(11)

Language is preserved by one generation and handed down to the following generation, and continuously undergoes a slow process of modification (23-24).

Whitney also recognized the individual and social aspects of language, as well as the absence of intention and reflection in true speech (51). He viewed language as an instrument of thought, but noted that the social influence on

language is no less important or enduring in its influences than the individual and mental aspect of language (17). Thinking much like Saussure would later, Whitney (unlike Humboldt) believed that words in a language are not iconic, but instead represent signs for ideas whose significance varies from individual to individual (20). Although not as explicit in his explanation as Saussure, he alludes to the arbitrariness of signs as being dependent upon the sound to meaning relationship within each individual speaker. As he states, "no two minds will produce pictures perfectly accordant with one another, nor will any precisely reproduce the original" (21). As he also mentions, language has no existence except in the minds and mouths of those who use it, and each articulated sign of thought is attached by a mental association to the idea it represents; the idea has "value" and "currency" only by the agreement of speakers and hearers, and the joint and consenting action of both in the act of communicating (35).

In summary, I feel Whitney's importance lies not only with his defining linguistic study as a science, but also with his very common-sense approach to explain the nature of language. With Whitney, the question of the sound to meaning relationship in language remains unanswered, but he established the foundation that led to the work of Saussure and the birth of structuralism. Whitney also highlights the importance of child language acquisition for language change and the impact that each generation has in the modification of language over time. This figures in much of the current work being done with language change and is central to modern generativist theory.

Before returning to Western European linguistic thought, let us now briefly shift our focus to the views of Baudouin de Courtenay (1870). Much like

Whitney, the currents of thought from his work tie directly to the Young Grammarian movement. While Whitney was the first to use the term linguistic science, Baudouin de Courtenay provided a more precise definition of the science of linguistics. Central to his discussion was the distinction between which aspects of language belong to the arts and which belong to the realm of science. According to Courtenay, art operates with technical rules and procedures. Science on the other hand deals with generalizations from facts, implications made from these facts, and scientific laws to provide explanatory force. In art, each step forward is made through invention, whereas in science each step forward is made through discovery (Courtenay, 50). The aspects of language that belong to the arts are those that involve intention, such as formal writing and poetry. The science of linguistics on the other hand involves the subconscious, or an absence of reflection or intention (51). Speech would fall under this category and belongs to the realm of linguistic science. Those before Courtenay, namely the comparative philologists, viewed language reconstruction and the description of those languages as the ultimate goal of their study. As Courtenay claims, and rightly so, the necessary first step in science is description (54). He goes on to state that description, however, should not be the endstate of study but instead the means to an end. Linguistics therefore must use empirical evidence, but is an inductive science whose purpose is to first generalize from the phenomena of language, seek to establish the forces that operate in language, and finally discover the laws that govern its development (55). The notion of establishing universal laws that govern language continues today as one of the single most important endeavors of the modern linguist.

Baudouin de Courtenay also recognized the physical and psychological aspects of language (59), and claimed that one of the first tasks of a linguist is to keep in mind the difference between the individual and society (131). He argued for the separation of linguistics from the realms of psychology and physiology. Like Whitney, he emphasized the study of modern languages in all its facets and did not fail to give credit to the labors of those before him. While recognizing the study of language for specific purposes (i.e. anthropology) as having value, Baudouin de Courtenay emphasized the isolated study of language -- the study of language for its own sake (127). Perhaps his biggest contribution however was the first use of the phoneme in the modern sense of the term. Baudouin de Courtenay also recognized the impetus for essential changes in language as stemming principally from the language of children, and the passing of the inclination to change with greater force to the following generations (215).

This now leads me to my discussion of the Young Grammarian movement and a return to the development of linguistic theory in western Europe⁸. The Young Grammarians were students of comparative philology and ushered in a revolution in the science of linguistics. We can credit the Young Grammarians with several new perspectives on linguistic theory. With the Uniformitarian Principle, they were the first to dispel the misguided belief of language decay and that concept that some languages are better than others (a theme prominent earlier in the works of Humboldt, Whitney and Baudouin de Courtenay above). The

⁸ Although Whitney and Baudouin de Courtenay are commonly associated with the Young Grammarian movement, they were actually geographically and temporally separate from the Young Grammarian school of thought.

Young Grammarians believed that the processes that occurred in languages of the past are the same that occur in modern spoken languages. Although they still maintained a historical perspective, they emphasized the study of modern languages. They were especially critical of comparative philology as being either too descriptive or too speculative. As we will see below with my discussion of Hermann Osthoff and Karl Brugmann (1878), and Hermann Paul (1891), many of the Young-Grammarian views are similar to those of Whitney and Baudouin de Courtenay. I will attempt however to focus on issues particular to the Young Grammarian school of Western Europe, and will seek to emphasize the major influences upon European structuralism and modern linguistic thought.

Continuing in chronological order, I will begin with Osthoff and Brugmann and a brief discussion of the preface to their monograph founded in 1878, entitled Preface to Morphological Investigations in the Sphere of the Indo-European Languages. Written by Brugmann but also signed by Osthoff, this preface outlines the principles followed by the Young Grammarians (Lehmann, 1967: 197). Polemic in nature, it is also an argument for the Young Grammarian school, and against the comparative school of those before them. In what can be claimed as a manifesto of sorts for the Young Grammarians, their preface addresses the insistence of oral, not written language; the study of speech as a cultural activity of humans; the concern with contemporary language to include dialects; the suspicion of overly speculative theory; and the recognition of analogical modification in language (197).

As I mentioned above, Osthoff and Brugmann emphasized human speech as central to the study of language and recognized that the modifications to

language occur with the individual who speaks the language (Osthoff and Brugmann, 1878: 198). More precisely, they state that one should actually not consider what was written, because written records are imperfect accounts of language. While still focused on historical change, their observations for the first time gave importance to the synchronic study of language and an emphasis of descriptive linguistics over prescriptive theory. Their goal was to study and describe language in its natural state, as it is spoken every day, rather than to claim or prescribe the state of language as one thinks it should be. The Young Grammarians, though unintentionally, brought the synchronic study of linguistics together with historical linguistics.⁹ Their focus was no longer upon the original language, but shifted completely to the opposite end of the spectrum, onto contemporary language and common colloquial speech. With their goal of understanding how languages change over time, it made more sense to start with what was known, and then advance to the unknown, something that comparative philologists did not consider (202). The Young Grammarian goal was to reform the previous methodological principles of linguistics and completely abandon the “hazy picture” created by the comparative philologists (203).

Osthoff and Brugmann also believed that by studying and comparing contemporary oral language with past forms of language, linguists can lend predictive force to their explanation of language change. They claimed that the direction of a shift is always the same for all members of a linguistic community,

⁹ First use of the term *diachronic* came later with Ferdinand de Saussure. Although they refer to diachronic linguistics as we understand it today, I chose instead to use the term ‘historical linguistics’ as they use in their discussion.

except where a split into a dialect occurs. By discovering sound laws that occur without exception, the direction of language change can be extrapolated, and future change can thus be predicted (204). This thought was truly revolutionary, and although questionable, was given considerable merit with Edward Sapir (1921) and his theory of language drift.

I will now conclude my discussion of Young Grammarian theory with a brief discussion of Hermann Paul. Whereas Osthoff and Brugmann were more explicit in their views and wanted to view linguistics as an exact science, Paul was more moderate in his views. With his Principles of the History of Language (1891), he expresses in his introduction a stance that opposes the purely empirical methods of his predecessors (Paul, 1891: xxi). He continues the argument that linguistics is a science, but one that stands in antithesis to the "exact" sciences, such as mathematics (xxii). More precisely, linguistics according to Paul, is a historical science of principles where analysis must precede synthesis (xxiii). He also brings to light a valuable point and states that although linguistics is a separate and distinct science, one cannot lose sight of the closely allied branches of science that contribute to a particular field of study (xxvi). His point is a critical one that has unfortunately been overlooked by many linguists of the 20th century. For example, with the birth of structuralist theory and later generativist theory, many linguists fall into the trap of leaning solely on one school of thought, completely disregarding ideas from outside their field of interest. Much like a horse with blinders, they consequently become ignorant of their intellectual surroundings and the valuable insight produced by other linguists in the field. A combinatorial approach that uses methods and principles by different schools of thought can

provide a template for understanding language and language change that a single approach cannot. This is a point I will illustrate later with my discussion of language change in German.

Paul also recognizes the mental and physical factors of language as well as the individual and social factors. He emphasizes that mental and physical factors obey special laws that cooperate for a common purpose (xxii), the obvious one being that of communication between individuals within a society. He also points out that highest importance should be given to the period of language acquisition in order to understand the variations in language over time (15). Although I will not discuss it here, Paul supports the argument that child language acquisition is the primary locus of language change, thereby increasing the likelihood that future linguists may be able to predict language change.

2.3.3 A Brief Introduction to Saussure and Structuralism.

Prior to Saussure, the efforts of those before him raised questions that began a path of change in the study of language. Beginning with Humboldt in 1836, we see an argument for the study of language as a science, an argument which was advanced through the turn of the century by the Young Grammarians. Prescriptivism was replaced by descriptivism in the study of language. Purely descriptive methods were subsequently dismissed with an emphasis placed upon establishing laws that explain language change. Linguists would begin to emphasize modern oral language and finally, the purely empirical approach by the Young Grammarian school was set aside by a more moderate Hermann Paul. Paul

recognized that to truly understand a state of language, one had to be able to understand that the sound to meaning relationship involved a mental side, unobservable to the senses.

At this point I do not plan to address the theory and work of Ferdinand de Saussure in detail, but plan instead to use him as a point of departure in my discussion of linguistic theory and illustrate how his work became the turning point for modern linguistic thought. Through his Course in General Linguistics (1916), Saussure has justly earned himself the title "father of modern linguistics." In my view, Saussure was significant to linguistic theory for two major reasons. First, he was able to synthesize the work of those before him and establish a system of language that identified the meaning-to-sound relationship that those before him were unable to accomplish. Not only was his theory ground-breaking at the time it was presented, it is still held as valid today, and is certain to endure beyond the 20th century. Second, his emphasis on the synchronic study of language resulted in a complete shift in the focus of linguistic thought that has since dominated 20th-century linguistics. His overemphasis on synchronic linguistics was a reaction against the approaches of his predecessors. Saussure believed Paul was in error when he stated that one should establish two different states in a language and then compare them to fully understand language from a *historical perspective*.¹⁰ Saussure rejected this notion and believed the true object of linguistic study must be to first discover the system of language. Whether intended or not, his revolutionary views of the linguistic sign led to an emphasis on synchronic study

¹⁰ Lecture by E.F.K. Koerner, *The Saussurean Legacy in 20th-Century Linguistic Thought and Beyond*, presented at the University of Texas at Austin, 18 February 1999.

that resulted in near abandonment of the diachronic study of language change. I feel it is also important to note that the disregard of diachronic linguistics was not a product of Saussure, but the reaction of others who fervently embraced his new ideas.¹¹

2.4 SUMMARY.

As I mentioned at the outset of this paper, understanding the origins of linguistic theory is central to an understanding of modern theory and, furthermore, is critical to the understanding of language and language change. The intent of our journey thus far has been to illustrate the dominant trends of the 19th century and the currents of thought leading to modern linguistic theory. I must admit, that although my discussion was rather lengthy for the purposes of this paper, it was by no means complete. My purpose however was not to provide a complete discussion on the origins of linguistic theory, but rather to illustrate the major trends in theory and two specific points that I will mention below.

The first point I wish to address is the shift from diachronic linguistics to synchronic linguistics and the overall consequences it has had on modern theory. We first witnessed an emphasis on the diachronic study of linguistics that endured until the beginning of the 20th century. Although the original goal of reconstructing ancient languages shifted to a description of how languages change over time, a historical perspective on linguistics prevailed throughout early linguistic thought. Even as the Young Grammarians placed emphasis on modern

¹¹ *ibid.*

spoken language over the older written forms, true synchronic study of language was not considered until Ferdinand de Saussure in the early 1900s. Although the synchronic study of language was critical to the advancement of linguistics, I feel it also had negative implications for the overall progress of linguistic theory. The overemphasis on synchronic linguistics led to a virtual abandonment of the study of language change. The new literally pushed aside the old, an unfortunate trend that persisted well throughout the 20th century. Just as many after Saussure abandoned all thought prior to him as irrelevant and obsolete, so have many abandoned Saussure's theory as obsolete with the advent of Chomsky and the generativist school of linguistics. It is my intent with this paper to attempt an approach that incorporates a combination of both synchronic and diachronic principles of linguistics. As I will attempt to illustrate below, I believe the true answer to the puzzle of language change can only be found through the incorporation of the two.

The second issue I wish to illustrate is that by ignoring the origins of linguistic theory, valuable points were either overlooked or completely missed. During the period before Saussure, from Humboldt to Paul, every linguist I mentioned above placed heavy emphasis on child language acquisition as the point of origin for language change, and further stressed the importance of the role that each generation plays in transferring elements of change from one generation to the next. This point was not given serious attention again until the 1980s with David Lightfoot, and continues to be an area of interest through the turn of the millennium.

Both the failure to combine the synchronic study of language with the diachronic, as well as dismissing the views of early linguists, is in my view a critical mistake that has led to an unfortunate stall in scientific progress. Although major advances were made during the 20th century, we could be much further along in unraveling the mysteries of language change had we not ignored the work of those before us. As Francis Bacon wisely pointed out in 1620:

Any man that seeks to form an opinion. . . should not think he can do so in passing or in the midst of other business; but should get to know the subject *thoroughly* (emphasis added). . . so that he becomes aware of the subtlety of things that experience will show him; and let him take due time to correct those misleading, deep-seated habits of thought. Only then, when he has become to be his own master, let him (if he will) use his own judgment (Bacon, 1620: 40-41).

Sometimes a fresh start is needed to make progress in science, beginning from the very foundations from which it started. All sources have their value and can add insight to a field which still contains many mysteries that remain unsolved. In our hunger for knowledge, it is not difficult to become lost in the details -- in looking at the trees, we often lose sight of the forest. No matter where our views lie, we sometimes have to force ourselves to give up previously held notions and familiarize ourselves with the whole before we return to the parts. When ideas from one school of thought become so deep-seated that different approaches become difficult to accept, discovery and truth are often overlooked and progress is impeded. I feel the path of modern linguistics illustrates this tendency.

In my discussion below, I will examine different views on sound changes in German and offer an explanation as to why these changes have occurred.

Building on the views of earlier linguists, I will then suggest a fresh explanation to the mystery for language change.

Chapter 3: Sound Change in German

Within the domain of diachronic linguistics, sound change is merely one facet of the phenomenon of language change. Ferdinand de Saussure stated that there are two different approaches to diachronic studies: a retrospective approach that is concerned with reconstruction of ancient languages, and a forward-looking perspective that goes in the opposite direction and follows the course of time (Saussure, 1916: 89 and 211). It is the forward-looking perspective that I am concerned with. Furthermore, although I am very much interested in all types of language change, I am looking specifically at sound change for a reason. Saussure believed that speech contains the seeds to all changes in language (97). He also stated that the object of study in diachronic linguistics is the study of "historical phonetics, and historical phonetics in its entirety" (139). I also believe that all instances of language change have a point of origin, beginning first with sound change. I chose to look specifically at sound change in German for two primary reasons: (1) my familiarity and interest in the German language, and (2) because of the amount of documented study of German sound change by others before me, this provides me with a solid base from which I can expand my endeavors to seek an explanation to the mystery of language change.

3.1 THE QUESTION OF I-ÜMLAUT.

Traditionally, linguists regarded i-umlaut in the history of German as having become morphologized with the transition from Old High German (ca. 750)

to Middle High German (ca. 1200). In defining what this exactly means, I will first describe how umlaut would have operated prior to morphologization, using a traditional explanation as presented first by W.F. Twaddell in 1938. Twaddell was an American structuralist and relied on the phonemic principle in his analysis. With the phonemic principle, the assumption is made that orthographic representations reflect the phonemic, or underlying (mental) forms, and do not reflect phonological processes. With this in mind, Twaddell was able to argue that umlaut did exist in Old High German (OHG) and was reflected in the orthography. While many claimed that umlaut was not marked orthographically until Middle High German (MHG), Twaddell claimed it *was* often marked by the /i/ in the following syllable (Twaddell, 1938: 178). For example, the /i/ in the umlaut environment indicated function in a similar manner as the silent /e/ in English at the end of a word. The silent /e/ functions as a marker, indicating a phonological process of vowel lengthening (as is evident in the words *kit* vs. *kite*). Although the orthographic marking of umlaut was not evident (except with short /a/ which I will discuss later), the *process* of regressive assimilation resulted in umlaut by either fronting or raising the vowel in question. This can be seen by looking at the illustration of the vowel triangle, located in Figure 2 on the following page.

As I mention above, i-umlaut can be seen as a form of regressive (distance) assimilation that was productive in OHG (ca. 750). Although Twaddell did not discuss regressive assimilation in terms of the vowel triangle, I feel it is helpful in providing a graphic representation to illustrate assimilation as it was effected by [i]. The environment of [i] in the following syllable served as a magnet for the

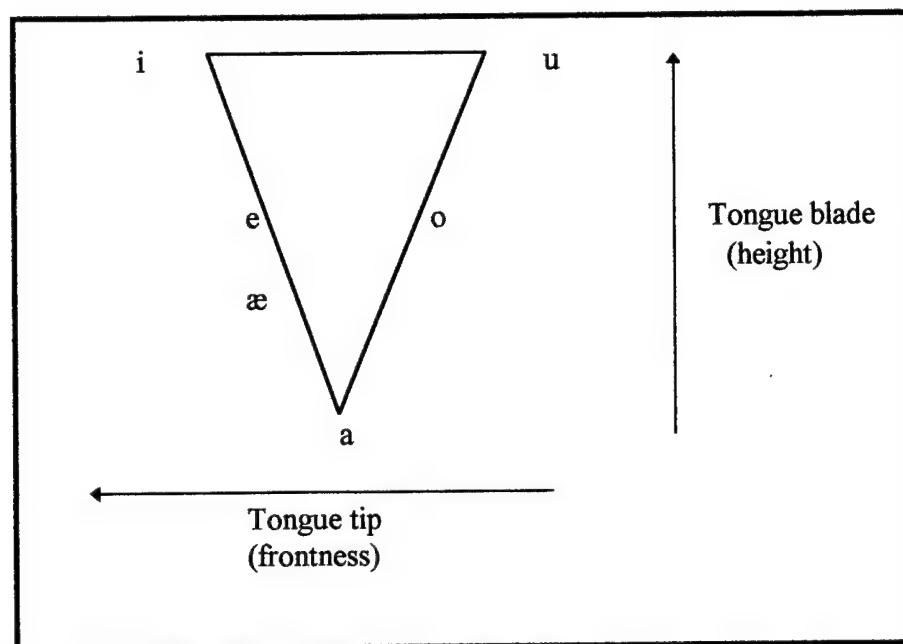


Figure 2: The Vowel Triangle

preceding vowel. In the case of primary umlaut with short [a], as well as with long [a] in secondary umlaut, regressive assimilation in the environment of [i] resulted in a process that raised of the tongue blade, thus altering articulation and producing a sound change, resembling either [æ] or [e]. A similar process occurred with the back vowels [o] and [u] (both long and short), except instead of raising the tongue, the environment of [i] in the following syllable resulted in a fronting of the tip of the tongue during articulation. Both vowels in this case were fronted. With this discussion, we can see how Twaddell was justified in stating that i-umlaut was indeed phonologically productive *and* indicated graphically in OHG texts.

We can now discuss the morphologization of umlaut in the history of German, where I will refer to observations by Herbert Penzl (1949), a linguist who, like Twaddell, also belonged to the structuralist camp. Morphologization occurred as a consequence of several sequential (chronological) events in German. First, with primary stress occurring in the Germanic languages, the stress in the first syllable of the word resulted in the unstressing of the following syllable. As the following syllable became unstressed, the [i] changed to a [ə] (Twaddell, 1938: 179; Penzl, 1949: 224, 240). With the i-environment disappearing, the function it had in creating the process of umlaut was lost. In other words, the functional load of the environment disappeared through a process of lenition (or weakening) which required compensation in some other way. As the environment creating the phonological process disappeared, the morphological process took over and assumed the functional load. Words then became morphologized over time into MHG (ca. 1200) and orthographic representations were required in the absence of the phonological process. In terms of the phonemic principle, we can also add that, as the umlaut qualities were no longer determined by following vowels and the orthography changed to reflect umlaut, new independent phonemes emerged (Penzl, 1949: 228-229). This can be referred to as a phonemic split. Whereas one phoneme existed in OHG with the realization of two allophones through a phonological process, MHG saw the split into two separate phonemes. We can see how this happened by looking at the following example in Figure 3:

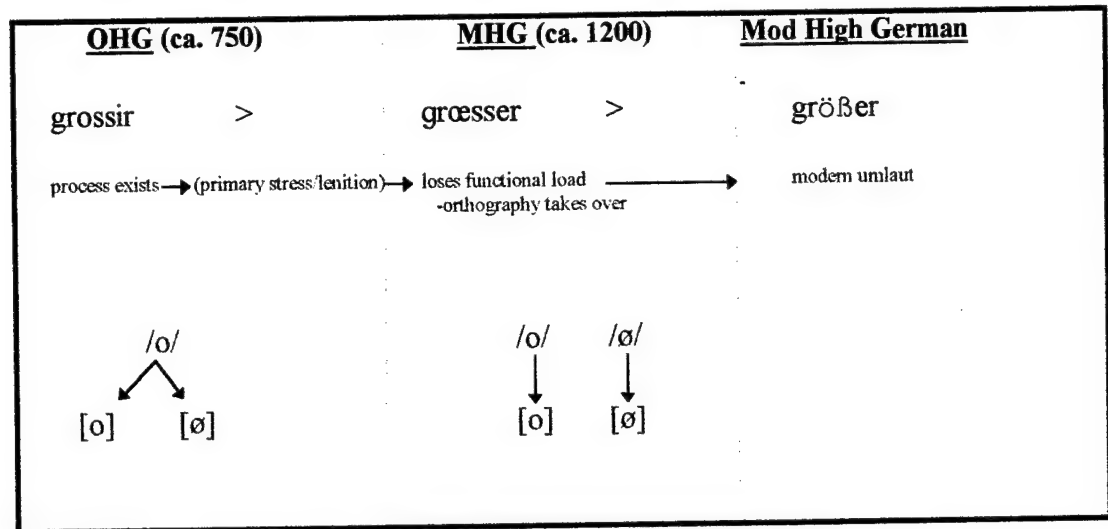


Figure 3: Phonemic Split in Middle High German

Penzl also offered additional and somewhat different views than Twaddell to the morphologization of umlaut. While Penzl recognized that morphologization occurred, he noticed data which indicated that umlaut appeared in MHG where the environment for i-umlaut did not exist in OHG. He also noticed that umlaut did not appear in MHG where the environment did exist in OHG and thus should have produced umlaut in the MHG orthography. He based these exceptions from the traditional view by providing an explanation based upon analogy. For words in MHG that showed umlaut with no pre-existing environment in OHG, he claimed that analogy occurred, instigated by the inflectional morphology of the language (Penzl, 1949: 232). For example, the plural of *boum* (tree) in OHG was *bouma*. In MHG, the singular *boum* remained the same, yet the plural became *böume*. Penzl claimed the OHG plural suffix *-ir/-i* that caused umlaut in MHG for some

words, were carried over to words without this OHG suffix. New words were derived in MHG through analogy and resulted in these exceptions to i-umlaut.

As mentioned above, Penzl also used analogy to explain why words that should have displayed umlaut in MHG did not. While he recognized that certain consonants may have intervened to prevent umlaut from occurring, he later rejected this idea. It is important to note that Penzl viewed umlaut as a single historical event (239). He claimed that the conditions for umlaut existed in all languages at the same time, so umlaut either occurred or it did not. For the examples which should have, but did not show umlaut, a form of reverse analogy occurred, according to Penzl. Again, after morphologization was complete from OHG to MHG, patterns in the inflectional morphology that resisted umlaut carried over to these forms. As a result, the words had no choice but to revert back to the original vowel that existed before, when the i-environment still existed in OHG. Penzl's argument would then account for words like *zweisprachig* which contain the environment for i-umlaut but resisted regressive assimilation. Morphological analogy according to Penzl then would lead either to the further spread of umlaut or, by impeding the spread, a leveling out of the umlaut phonemes (239-240).

Around 1970, Bach and King offered a completely phonological account of i-umlaut based upon a generativist explanation. They criticized the traditional morphological account as offered by Twaddell and Penzl above, and offered their phonological account based upon two fundamental reasons. The first reason was that the condition for i-umlaut is extant in limited conditions, such as with *Arzt* and *Ärztin*, the distinction between male doctor and female doctor (Bach and King, 1970: 7). They secondly argued that the underlying forms did not change over

time. The underlying forms in Modern German instead continue to contain the i-umlaut condition, and through a process of phonological rules, the surface representation reveals the umlauted forms (11). In actuality, their argument is the same as the traditional argument as far as environment and phonological processes are concerned. They maintain the same basic umlaut rule, and differ only with respect to the morphologization of umlaut. The following examples sum their argument for a purely phonological approach:

	Bücher	Gäste	Arme
Underlying Form	bu:x + ir	gast + i	arm + u
Umlaut	bü:x ir	gesti	
Vowel Reduction	bux ər	gastə	armə

Figure 4: A Phonological Account of Umlaut (Bach and King, 1970: 11)

By using the plurals of *Buch* and *Gast* as examples, Bach/King show how the underlying plural forms produce the umlaut and, through a final step of vowel reduction, the underlying vowel is reduced through a process of lenition as it is realized on the surface. Likewise, they show the plural of *Arm* to undergo a similar process. The underlying plural form of *arm* however is *armu*, which also corresponds to the OHG form. Because the i-umlaut environment in this case does not exist in the underlying form, umlaut does not occur. This results in the final step of vowel reduction without umlaut being realized in the surface representation.

In response to Bach and King's purely phonological account, Orrin W. Robinson (1974) refutes their abstract argument by reverting to a morphological

account through the extensive use of empirical data. Robinson relies on neutralization rules that restrict the abstractness of underlying representations. He shows that the Bach/King argument relies on too many abstract rules which must be reduced in scope, or neutralized (Robinson, 1974: 5). Robinson uses the derivation of noun plurals as well as the strong verb paradigm to illustrate that analogy does indeed account for the extended environment of umlaut (7-11). He shows that derivational and inflectional morphology occur first, and only then can analogy occur. The existence of data over time proves that certain changes took place in a systematic and chronological order, and that a morphological solution to umlaut remains as the most plausible.

As far as from a purely synchronic viewpoint, we can refute Bach/King's purely phonological account and re-argue for a morphological analysis of umlaut in modern German simply by showing evidence where the i-umlaut environment currently exists orthographically (i.e. on the surface), but the umlaut process does *not* occur. For example, the adjectives *zweisprachig* and *sachlich* clearly show environments where we would clearly expect umlaut to occur. Yet, on the contrary, the [a] in the syllable previous to the i-environment in both examples does not result in umlaut. Therefore, the Bach/King argument, though at first plausible as an explanation, clearly fails. A morphological explanation must be given based upon synchronic evidence. Analogy and morphologization occur to perform a function in German, primarily that of semantic differentiation working in the inflectional morphology of the language. Once morphologization is complete, analogy sets in and umlaut becomes productive as a pattern within the

morphology. Again, umlaut functions more at a semantic level, distinguishing meaning as with singular vs. plural and indicative vs. subjunctive distinctions.

Finally, I will now turn to discussion about the puzzling nature of primary umlaut, or the umlauting of the short /a/. Primary umlaut was puzzling because it went against the claim that umlaut was a productive process in OHG, and did not become phonemicized and morphologized until almost 600 years later in MHG, when all other cases of umlaut first became evident in the orthography. In 1996, David Fertig makes the important observation that we must not confuse the phonological “truth” of umlaut with the orthographic puzzle of umlaut (Fertig, 1996: 180). In searching for the phonological “truth” then, I will examine the work of Robert B. Howell and Joseph C. Salmons (1997). Before discussing the motivation for early phonemic merger of umlauted short /a/ as presented by Howell and Salmons, however, I will first argue this change briefly in terms of vowel harmony and a psycho-linguistic explanation. This in turn will facilitate my discussion of Salmons and Howell. Let us first view an illustration of the change from Proto Germanic to OHG, by examining Figure 5. This chart illustrates that umlauted short /a/ was problematic in that it was the only monophthong that showed this kind of phonemic split from Proto Germanic to OHG:

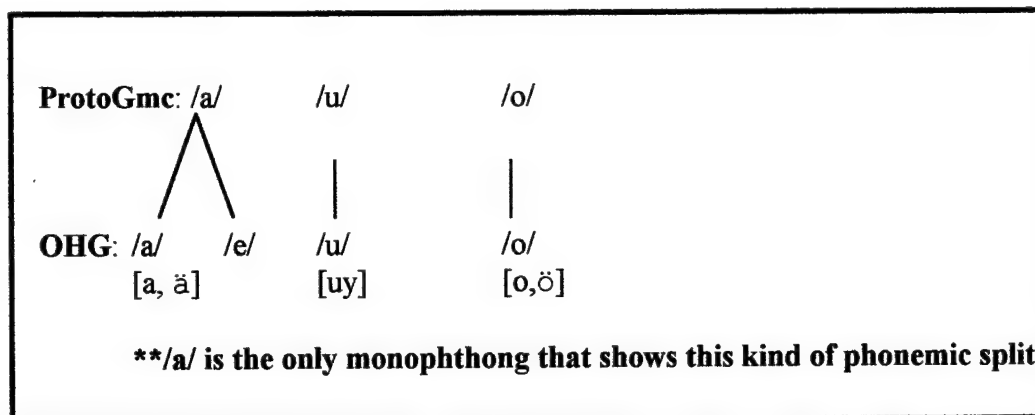


Figure 5: Phonemic Split in Old High German

Recalling the phonemic principle, if all change was to have occurred as traditionally believed, /e/ in the orthography should not have appeared until MHG. Instead, /e/ appeared in OHG in the environment of an earlier i-umlaut. This suggests that umlauted short /a/ became phonemicized and morphologized in OHG, where *all other* forms of umlaut (non-primary) did not see this change until MHG.

Let us now examine the motivation for this earlier change. Looking at the following diagram located in Figure 6 on the next page, we see how vowel harmony played a role in the early phonemic merger. The existence of [æ] created an unstable environment -- the symmetry of the vowel system was unstable and the desire for height harmony within the vowel system urged change. This cluster with [e], [æ] and [a] caused confusion for the average speaker, and was thus a strong motivation for change:

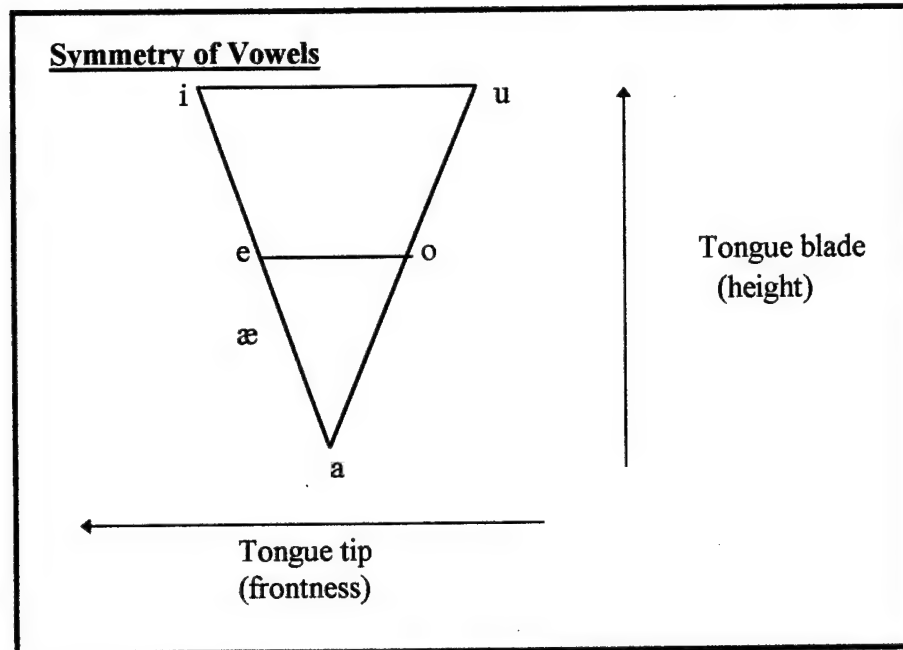


Figure 6: Symmetry of Vowels

Let us now examine the following diagram:

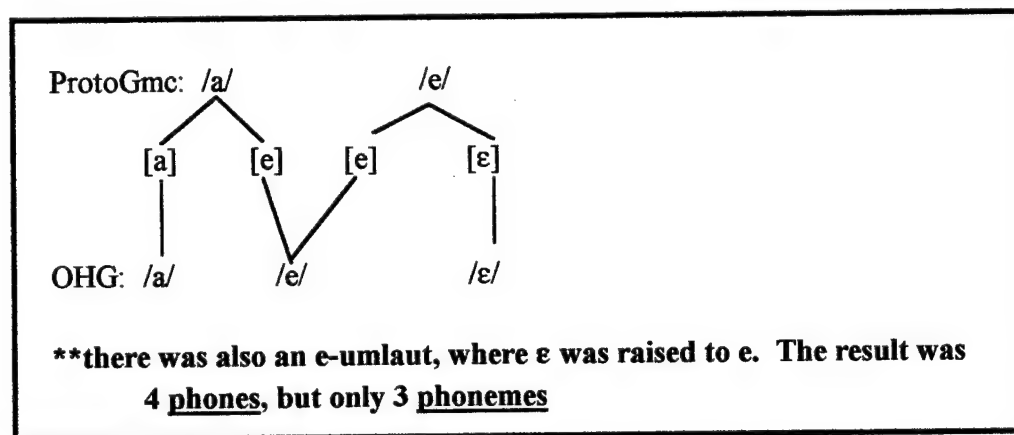


Figure 7: Phonemic Merger of Umlauted Short /a/

This second diagram also illustrates the motivation for change based upon a psychological standpoint. With the presence of umlauted e, where ϵ was raised to e, the result in Old High German was the existence of four distinct phones (sounds), but only 3 phonemes. This also creates confusion for the listener and, in terms of a psycholinguistic explanation, also becomes a strong motivation for early change.

Turning now to Howell and Salmons, I will continue to examine the umlauting of short /a/. They approached the question of umlaut in Germanic with the principle that diachronic and synchronic processes go hand-in-hand. Whereas linguists since the 1960s have often resorted to purely analogical accounts of umlaut failure, they claim that umlautless residues (examples where the process of umlaut did not complete itself) point to comprehensible patterns of sound change rather than morphological realignment by analogy (Howell and Salmons, 1997: 84). Looking also at umlaut in terms of a vowel harmony process, they claimed that height harmony occurred first with umlauted short /a/ and then later with umlauted long /a/. Height harmony dominated the period of OHG. After height harmony was complete, frontness harmony became dominant and affected both short and long umlauted /o/ and umlauted /u/. The diagram in Figure 8 illustrates how primary umlaut occurred during the pre-OHG period followed then by non-primary umlauted long /a/, then the rest of the umlauting as indicated by the order in the diagram.

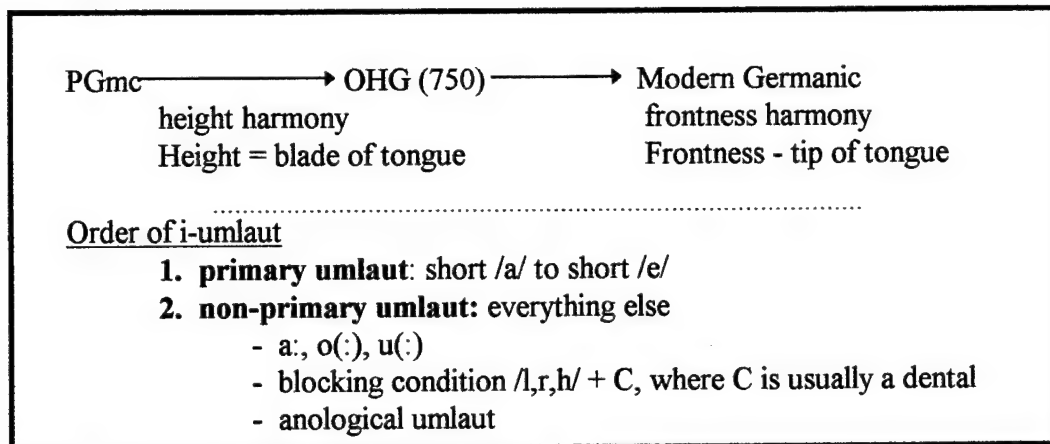


Figure 8: Height and Frontness Harmony in Umlaut

With non-primary umlaut, the diagram above also illustrates a blocking condition which is created by intervening consonants. These intervening consonants (namely /l,r,h/ followed by another consonant, usually a dental) contribute, almost decisively, to umlaut failure (96). Although I will briefly mention this observation again later, it is the vocalic relationship that Howell and Salmons mention that I wish to focus upon with my discussion.

Howell and Salmons base their argument on three basic principles:

1. **Perceptibility:** harmony creates greater perceptibility: features serve to mark contrast and must be perceptible to fulfill their function.
2. **Articulatory stability:** minimize articulatory difference (e.g. by assimilation) to reduce the amount of effort in speech.
3. **Extension:** extend features over long stretches of sound to maximize stability of (1) and (2).

These principles serve to motivate change in vowel harmony languages (Cole and Kisseberth, 1994 in Howell and Salmons, 1997: 89-90). Closely connected to these basic principles and included in their argument is the concept *cline of implementation*. This concept simply states that certain changes occur before others; e.g. short vowels change before long vowels, height harmony occurs before frontness harmony, and specific vowels change before others based upon the principles of perceptibility, articulatory stability, and extension. I will use the next diagram to illustrate this argument¹².

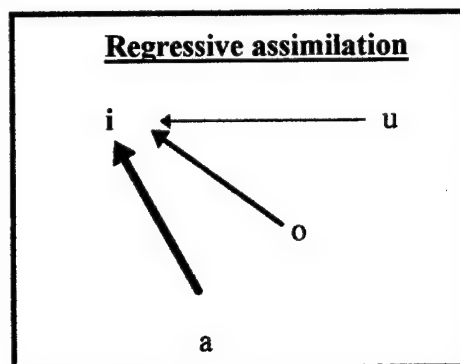


Figure 9: Regressive Assimilation

This diagram illustrates how certain changes occurred first. In simple terms, Salmons and Howell claimed that the vowels that are furthest away from the trigger will undergo change first (93). Here we see that /a/ is furthest away, and this explains why unlauded short /a/ was seen earlier and height harmony occurred first. The vowel /o/ is the next furthest sound away from the trigger, followed

¹² Although I will not discuss the concept of **breaking** in detail, I feel it is worthwhile to mention it. The principles set forth by Howell and Salmons also apply to the "breaking" of vowel sounds into diphthongs. Diphthongs were formed by originating from one vowel, and moving in both height and frontness to achieve vowel harmony with two different triggers.

lastly by /u/, which umlauted to achieve frontness harmony. As illustrated below, this entire process over time resulted in the model of vowel harmony that was developed by Trubetzkoy (1938):

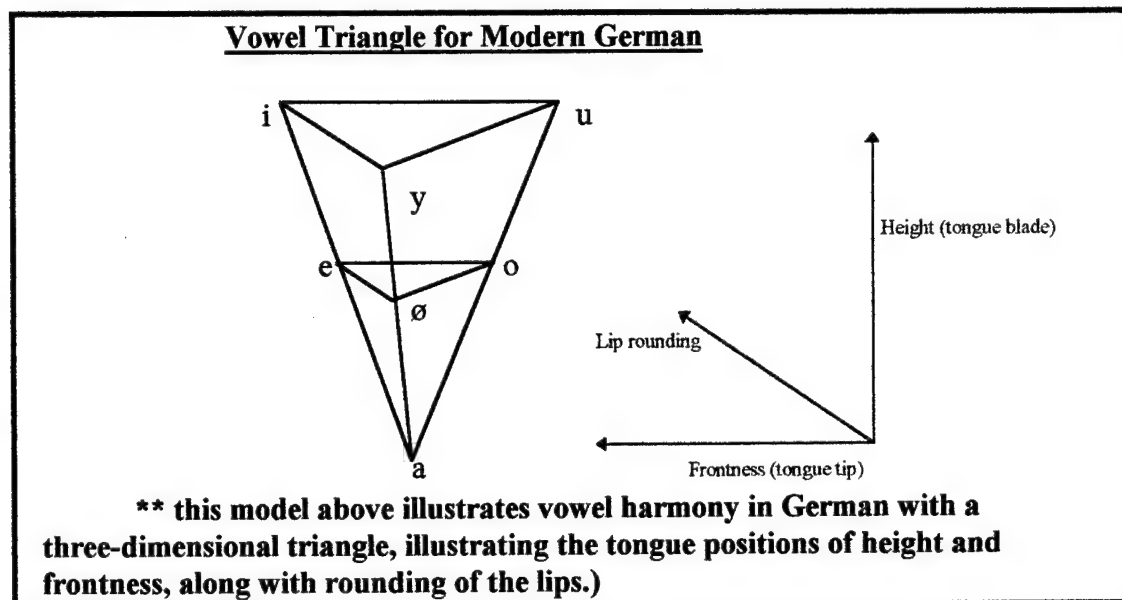


Figure 10: Vowel Triangle for Modern German

To explain the non-appearance of umlaut in certain dialects, Howell and Salmons go on to argue that while certain environments favor umlauting over others, the blocking of i-umlaut also plays a factor in the diachronic change of umlaut. This refutes Penzl's earlier argument where he rejected the idea of consonants blocking the occurrence of umlaut. Specifically, Howell and Salmons claimed that the consonants /l/, /r/, and /h/ blocked umlaut in some areas, which they referred to as *relic areas*. These relic areas serve as evidence of incomplete umlaut developments and can provide us with valuable "snapshots" of the developmental stages of the umlaut process (88). The occurrence of relic areas

makes perfect sense when we take into account the wave theory, and the basic premise that vowel change in West Germanic began in the North and moved South. Based upon their argument and including their principles for change shown above, along with their premise that a cline of implementation exists, Howell and Salmons then needed to find a relic area to locate residues of umlaut and thus determine if their theory was correct. The relic area needs to show where the process of umlaut did not complete itself, thus providing us the snapshot of how the change actually occurred in stages over time. As it turns out, Modern Dutch serves as a perfect example where blocking occurred and the umlaut process did not complete itself. We can see this with the following examples:

<u>WGermanic</u>		<u>Mod Dutch</u>	<u>Blocking Environment</u>
giwaldi	>	gewelt	none (primary umlaut)
þankjan	>	denken	k, but no C (primary umlaut)
mahtig	>	mahtig	h + t
horian	>	horen	r, but no C; + non-primary
**environment favorable for blocking = /l,r,h/ + C			

Figure 11: Blocking in Modern Dutch

We find our residues in Dutch, and see that primary umlaut occurred, but non-primary umlaut did not (92-94). With the first example *gewelt* we see the occurrence of primary umlaut with short /a/. With the second example *denken*, we see primary umlaut (even though the environment appears favorable for blocking,

the absence of the intervening consonant allows umlaut to occur). With *mahtig*, the environment $h + C$ exists, where C is a dental stop, thus predicting that umlaut will be effectively prevented. All other changes involving long /a/, short and long /o/, and short and long /u/ were blocked. With the final example *horen*, we have /r/ but not an intervening consonant. The example is still effective however in showing that Dutch never reached this stage in non-primary umlaut. From this example we can conclude that /r/ may have slowed down the process of regressive assimilation long enough for morphologization to have occurred before umlaut was able to take place.

With the above discussion, we should now have a clear picture of how vocalic change occurred in German by a regressive-distance-assimilation process of i-umlaut. While different views were offered over the course of time, the explanation provided by Howell and Salmons provides perhaps the most convincing argument that explains how this change occurred. Much in the same manner as my discussion above, I will now examine sound change in German with respect to consonants, specifically the Second Sound Shift.

3.2. THE SECOND SOUND SHIFT.

When referring to the Second Sound Shift, the traditional model states that the changes occurred from the period of West Germanic to OHG. All other languages within the Germanic group, though affected by the First Sound Shift known as *Grimm's Law*, were unaffected by the Second Sound Shift.

The traditional analysis of High German affricatization is treated as a consequence of aspiration of voiceless stops. Vennemann (1984, 1985) reappraises the traditional analysis with what he refers to as his “bifurcation theory.” Using his bifurcation theory in the development of Germanic voiceless stops, he offers an iconoclastic yet plausible reinterpretation of the Second Sound Shift. His explanation of the Second Sound Shift differs completely with the traditional approach proposed by Grimm (as well as nearly everyone else). Using his bifurcation theory, Vennemann (1994) claims that the Second Sound Shift had occurred approximately 600 years earlier than according to the traditional approach. Vennemann, when referring to the Second Sound Shift, speaks in terms of the pre-Germanic period and the Germanic period. His bifurcation theory dates the Second Sound Shift around the second century (Vennemann, 1994: 529). The traditional approach on the other hand deals with the West Germanic period (approximately at the turn of the millennium) and the Old High German Period (ca. 750). According to the traditional approach, the Second Sound Shift occurred around the eighth century.

As mentioned above, Vennemann refutes the traditional approach and refers to it as the ‘succession theory,’ which can be depicted as follows:

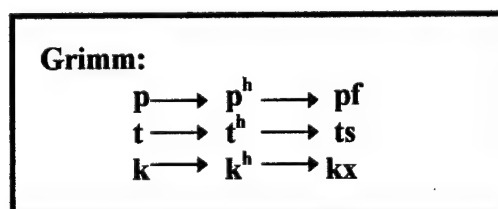


Figure 12: The Succession Theory

Vennemann criticizes this approach due to reasons based upon sound articulation and the position we would expect these sounds to occur. Looking first at place of articulation, Vennemann notes that in a sample of 317 languages, not a single system combines labial, dental (or alveolar), and velar (or postvelar) affricatives (541). He also claims that the place we would expect to see aspiration the most, at the beginning of words, does not exist with the data used to support the 'succession theory' (545). On the contrary, aspiration appears the most in word medial position. The term *homorganic* then becomes an important feature of his discussion. Vennemann claims that aspiration and fricativization occur in the same place, namely the glottis. Vennemann as a result views the pre-Germanic consonants /p/, /t/, and /k/ as glottalic ejectives (536). Looking at the data available in OHG, he then argues for his bifurcation theory to explain affricatization in the Second Sound Shift, as depicted below (1985: 536; 1994: 274).

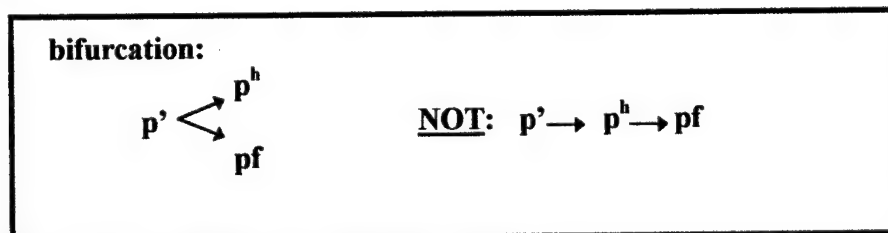


Figure 13: Vennemann's Bifurcation Theory

As shown in the preceding diagram, bifurcation involves a simultaneous split, instead of the successive changes as offered by Grimm (it is important to note that the /p't'k'/ that Vennemann refers to is not the /ptk/ of West Germanic, but from the pre-Germanic period). Vennemann claims that the appearance of aspiration

and the affricative in West Germanic results from this bifurcation. Instead of the sound changing from p' to p^h to pf , he claims that the sounds p^h and pf occur simultaneously (High Germanic and Low Germanic respectively) (1994: 274). He argues that this happens for two reasons: (1) because the difference between aspiration and fricatives is very little (the only difference between the two involves closure of the glottis), and (2) because of the acoustic perception differentiating them in speech was also minimal (536). This provides a logical process of bifurcation, where aspiration and fricatives differ in only one feature, closure of the glottis¹³. Using the data below, one example in particular appears to support his claim. With the example WGmc *peper becoming OHG pfeffar, we see the initial /p/ in *peper becoming /pf/, while the medial /p/ which occurs between two vowels shows aspiration. This, according to Vennemann, could not have happened simultaneously unless bifurcation occurred previously in Germanic.

While Vennemann offered an iconoclastic account of the Second Sound Shift, Davis and Iverson (1995) offer new evidence that strongly supports the traditional analysis. They reject Vennemann's bifurcation theory and offer an explanation in terms of segmentalization of the aspiration feature (Davis and Iverson, 1995: 112). According to their proposal, the syllable is the source of the explanation. Focusing on the syllable, Davis and Iverson identify four distinct phases during the Second Sound Shift that account for German affricatization.

¹³ Vennemann (1985; 1994) offers a much more in-depth argument for his bifurcation theory which, for the purposes of this paper, I choose to exclude. My aim is to merely present another plausible explanation for the Second Sound Shift in German by highlighting the main points from Vennemann's bifurcation theory.

Looking at the diagram below, I will use an example from their data to illustrate their argument (114):

<u>Stage 1 (WGmc)</u>	<u>Stage 2</u>	<u>Stage 3</u>	<u>Stage 4 (OHG)</u>
o . p ^h an	op . han	op . fan	of . fen

Figure 14: A Suprasegmental Approach to the Second Sound Shift

Stage 1 in the example above illustrates a pre-existing condition in West Germanic, where the preceding syllable ends in a short vowel. The next intermediate step in **Stage 2** involves the “Syllable Weight Law,” also known as Prokosch’s Law (Prokosch, 1938: 140). This law, in basic terms, states that the syllable weight of a stressed syllable will prefer two morae, whereas the unstressed syllable will tend to only one mora (Davis and Iverson, 1995: 116). With the preferred-stress syllable becoming the initial accented syllable with two morae, we can expect either a consonant with a short vowel (CV) or a long vowel followed by no consonant (VV). The result in this case involved o . p^han becoming op . han. With stress occurring initially, here we see a shifting of the syllable boundary to the right and the aspiration from /p/ becomes realized as /h/ in the next syllable. The first syllable in this case contains a vowel followed by a consonant (VC), occupying two morae. **Stage 3** involves what is known as the “Head Law” (Vennemann, 1988: 13-14). This law states that the syllable onset prefers a more fortis sound, and results in the /h/ becoming the fricative /f/. Or in other words,

single strong consonants are preferred in syllable onsets (Davis and Iverson, 1997: 116). As a result, **op.han** then becomes **op . fan**. Finally, with **Stage 4**, a weakening occurs to improve the sonority profile between syllables. This results in **op.fan** becoming **of . fen** in OHG. This weakening of the stop to a fricative improves the sonority profile, in that fricatives are “weaker,” or marginally more sonorous, than stops (117). Consequently, this explanation places the Second Sound Shift back to the eighth century around the year 750. In accordance with the traditional analysis, /p/ in West Germanic becomes /pf/, and finally /f/ in OHG.

Similar to the Howell and Salmons approach with i-umlaut above, Davis and Iverson sought support for their theory by attempting to find a dialect that showed the Second Sound Shift as being incomplete. They found the synchronic data they were looking for near the Benrather Line in the small town of Wermelskirchen. The diagram below illustrates some of the data they discovered:

<u>Data: Second Sound Shift</u>		
<u>WGmc</u> (ca. 0)	<u>OHG</u> (ca. 750)	<u>Wermelskirchen</u>
*opan	offan	ɔfən
*slapan	slafan/slaffan	sla:pən
*skarp	scarf	ʃarp
*peper	pfeffar	pɛfər
*etan	ezzan	ɛsən
*at	az	ɔt
*strikan	starihhan	ʃtrikən
*streik	streh	ʃtrɛç

Figure 15: Data - The Second Sound Shift (Davis and Iverson, 1997: 120)

The data above shows that the Second Sound Shift was complete by OHG. The data also shows with the dialect of German in Wermelskirchen, that the Second Sound Shift did not occur to completion. Specifically, according to the analysis that Davis and Iverson provide, the Second Sound Shift in Wermelskirchen stopped at **Stage 1**. The Syllable Weight Law does not come into effect, and the previous syllable maintains a short vowel. This was exactly the data Davis and Iverson were looking for to support their argument. With Wermelskirchen being located just north of the Benrather Line between Düsseldorf and Cologne, Davis and Iverson believe that the core of the Second Sound Shift reached that dialect as the leading “wave” of change spread northward (120), leaving what Howell and Salmons referred to as “residues” of proof.

Returning to the diagram above and looking first at the example with West Germanic *etan, we see the Second Sound Shift to completion in OHG, producing ezzan. With the Wermelskirchen dialect, on the other hand, we see that *etan became ɛ.sən, and maintained a short vowel in the preceding syllable. The Second Sound Shift is in essence frozen in time. With the past tense form, *at in West Germanic became ot. Again we see that the short syllable is maintained. The example *slapan in West Germanic becomes sla:pen in Wermelskirchen. Although the vowel is lengthened, there is otherwise no difference between the two words. This provides evidence that the Second Sound Shift did not occur in this particular dialect. The example *peper > pefər also shows a short vowel in the preceding syllable, but interestingly shows the word medial /p/ > /f/. Exceptions like this can be explained by analogy, and it is always important to keep in mind that negative evidence does provide proof of failure, and consequently does not necessarily

mean that the Davis/Iverson analysis fails. Another interesting example is with *strikan, which becomes *streç* in Wermelskirchen (*strikan > strihhan in OHG). While it appears to be some sort of violation to the Davis/Iverson approach, it can actually be explained perfectly in synchronic terms. The expected /k/ may have involved fricativization resulting instead in /x/. Since [ç] is preceded by a vowel with the feature [-back], we would expect /x/ in this case to be realized as [ç].

In summary, the traditional analysis seems to be the correct approach to explaining the Second Sound Shift. With the recent argument from Davis and Iverson, a suprasegmental approach of the data in Wermelskirchen seems to provide extremely solid evidence to support their explanation, and sheds new light on the phenomena of diachronic sound change.

Chapter 4: An Explanation of Sound Change

Thus far we have examined the origins of linguistic theory, which then led to my examination of sound changes in German. With the different explanations of sound changes above, looking first at i-umlaut and then the Second Sound Shift, we can see that a great deal of progress has been made over the years in explaining how sound changes came about, and even why certain changes occur. In my view, the majority of recent progress can be largely attributed to the use of synchronic data by linguists to explain diachronic phenomena. Revisiting a point I made above with my discussion on linguistic theory, since Ferdinand de Saussure in the early part of this century, we have seen an overemphasis on synchronic study with relatively little being done to advance the field of diachronic linguistics. The Howell and Salmons discussion of i-umlaut, along with the discussion of the Second Sound Shift immediately above by Iverson and Davis, are good examples of how synchronic study is used to explain diachronic phenomena. In other words, we must first turn to synchronic linguistics to unravel the mystery of language change.

4.1 LANGUAGE CHANGE IN GENERAL: WHY EXAMINE SOUND CHANGE?

As we know, language can change in more ways than one. Sounds in a language system can change, words can change, and syntax can change. As I briefly mentioned above at the beginning of chapter three, I believe that the seeds to all changes lie in speech (Saussure, 1916: 97) and can be found in historical

phonetics (139). Saussure unfortunately dismisses speech as being secondary to his study of language structure, and consequently is a relative point of non-interest for him. There are others however, both before and after Saussure, who did not dismiss the importance of speech and sound change in language. A second point illustrated with my discussion of the origins of linguistic theory, is that nearly everyone before Saussure, both within Western Europe and outside, concerned themselves with sound change in language. The groundbreaking work by Saussure became a point of departure for the overall field of linguistics. With the search of an explanation of the sound to meaning relationship becoming the emphasis of linguistic study, synchronic linguistics pushed the diachronic study of language aside as matter of secondary importance.

After Saussure, Edward Sapir (1921) renewed an interest in diachronic linguistics as he introduced the concept of drift in language. With his theory of drift, Sapir claimed that languages move down in time in a current of their own making (150). Leaving the details of his theory aside for the time being, a point that I feel is of significant importance with his theory of drift is that he recognized that there are internal factors to language change, completely independent of geographic and social constraints.¹⁴ Sapir notes that an examination of individual speakers in a language will reveal countless differences in detail, namely in choice of words, sentence structure, features such as rate of speech, tone, and stress, and differences in the pronunciation of particular vowels, consonants, and

¹⁴ I would like to note that I am not discounting external factors to language change, but instead am interested in isolating internal factors to language change, where I believe the primary locus of language change can be found.

combinations of the two. Each person's idiolect is not an identical copy of the language, but in a sense a slightly different dialect of the same language (147). Hermann Paul also believed that a language system exists finitely only in the individual (1877: 325) and that each individual has his or her own language (1891: 23). In a more specific sense, each individual speaks a distinct idiolect of his or her language. This belief is even held today in modern generativist theory, most recently expressed by Lightfoot (1999: 78-79). With variation and individuality in mind, I am specifically interested in the differences in sounds that we find in everyday speech, and the internal factors that bring about this variation and produce change in language.

Although Sapir's theory of drift focuses on morphological and syntactic change (word order in English), I wish to focus not so much upon his theory, but instead his method. In his work, Sapir illustrates that there are three major types of drift: the loss of case marking, the stabilization of word order, and the drift toward the invariable word. His method shows that there is a *causal* relationship between each type of drift. David Lightfoot criticizes Sapir's theory of drift (Lightfoot 1981: 214-215; 1999: 208) and claims that Sapir did not invoke drift as an explanatory principle, but drift was in itself something that required explanation (1981: 219; 1999: 210). Here I disagree with Lightfoot and believe we can learn from Sapir's approach¹⁵. Sapir takes an atomistic approach and explains the occurrence of syntactic change as resulting from smaller elements of change within

¹⁵ Although I do not intend to discuss the details of Sapir's theory of drift, it is not my intent to leave the impression that I disagree with his theory. In fact, I believe Sapir's theory of drift contains merit toward explaining morphological and syntactic change in the English language. It is a discussion however that I do not intend to address with this paper.

the morphology of the language. I believe the answers to change can be found by assuming such an approach. René Descartes (1637) perhaps expressed this best with his laws of obtaining knowledge. Descartes believed that each problem under examination must be divided into as many parts as possible, as might be necessary for an adequate solution. He further stated that all thoughts must be directed in an orderly way, beginning with the simplest objects, those most easily known, and advancing step by step, little by little, to knowledge of the most complex (Descartes 1637: 20-21; 21)¹⁶

Using this same kind of approach, I wish to look even deeper within the language system by examining the phonetics and phonology of language. Sapir later (1963) alludes to phonetic drift in language. He states: "Linguistic changes may be analyzed into phonetic changes, changes in form, and changes in vocabulary. Of these, the phonetic changes seem to be the most important and the most removed from direct observation" (Sapir, 1963: 23). More recently Labov (1994) claimed that "by accepting the word as the fundamental unit of change, the investigator is less likely to search for the deeper phonetic regularities that may underlie the process of change." (Labov, 1994: 450). I therefore conclude, that to understand how the entire system of language changes, we need to be able to examine and understand the internal workings found within the language. Specifically, by assuming a nuts-and-bolts approach to language change, we must first begin by examining sounds (and features that make up sounds), the

¹⁶ I am making reference to two separate translations of Descartes' *Discourse on Method*: the first by Elizabeth Anscombe and Peter Thomas Geach (1971) and the second by John Veitch (1989). Both translations express the same ideas, but use slightly different terminology.

fundamental building blocks that work in the phonology of a language system. We can then advance step by step in our search of answers to the question of change within the entire system of language.

4.2 SEARCHING FOR THE TRIGGERS TO CHANGE.

In our search for the answer to how language change really happens, in a specific sense, we need to determine where exactly to look and determine what exactly triggers language change. Going back to Saussure, he claims that diachronic linguistics should be concerned with the connections between sequences of items not perceived by the same collective consciousness, which replaces one another without themselves constituting a system. (Saussure, 1916: 98). Changes in other words are never made to the system of language as a whole, but only to its individual elements (86), where it is in speech alone we find the seeds of every change (97). Even then, if we determine that the basic element of language we wish to examine is the sound, this still leaves us without a specific starting point for our investigation. In trying to determine where to look for change, I will use Saussure's comparison of language to a game of chess, where the state of the chess board corresponds to the state of the language. The system of language, like the game, is only a temporary one, that varies from one position to the next. In order to move from one stable position to another, or in the linguistic sense, from one synchronic state to another, we only need to move one piece. There is no "general upheaval," yet each move has an effect upon the entire system (88). To gain a diachronic perspective of language, we must first examine the changes from

one synchronic state to another. Synchrony, in other words, must precede diachrony, and both work hand-in-hand in the search for answers to language change.

This brings us back to the point of being able to distinguish external from internal factors involved in language change. Saussure claims that his comparison of language to a game of chess is defective in one sense. In chess he claims that the players *intend* to make each move and have some effect on the system, whereas in language there is no premeditation involved. With language, each modification to the system occurs "spontaneously" and "fortuitously." With Saussure's comparison the players are either unaware or unintelligent (89). Here I agree with Saussure in the sense that language change occurs without premeditation and intent, but I also take slight issue with his view. I compare the players in chess to the external factors of language, that help to either bring about language change or impede it. If we assume that the players are equally intelligent, the game can proceed very slowly, with large amounts of time elapsing between each individual move, or each change in a synchronic state. If one player on the other hand is smart, or the other player not skilled in the game, the game can proceed more quickly and tend toward one particular direction or the other, in favor of the winning player. External factors (e.g. social, political, geographic, etc.) to language change work in a similar fashion. They can serve to either facilitate change or provide resistance to it. But as Saussure also states, "in a game of chess, any given state of the board is totally independent of any previous state of the board" (88). In this sense I feel we must be able recognize that external factors exist, but we should concern ourselves only with the state of the

game, or in the linguistic sense, focus on those factors purely internal to language change. In narrowing our search for where to look for change, we must then be able to: (1) isolate external factors from internal ones, (2) focus on the internal factors, where the seeds to language change lie; and (3) proceed with our analysis in a systematic manner by recognizing and comparing synchronic states in order to then explain the diachronic phenomenon of language change.

This still leaves us however with one more problem -- we cannot see language change as it occurs. As William Labov stated when referring to "changes from below" (i.e. changes originating in the vernacular and reflecting the operation of internal linguistic factors), speakers are not conscious of such change until it reaches its last stages (Labov, 1994: 453-54). In this simple observation, two points are made that are worth mentioning. First, we need to examine everyday speech to locate the origins of language change. Second, we simply cannot see the changes as they occur. Language change results from the operation of internal factors within the subconscious. Because we are dealing with the subconscious, we are thus unaware of changes as they occur.

This leads me to the final point I wished to illustrate with my discussion of the origins of linguistic theory. Namely, the important role that child language acquisition plays in the process of language change. While nearly everyone in the nineteenth century addressed this point, it was overlooked with the sudden shift in emphasis on synchronic linguistics in the twentieth century. Like our predecessors, it is my belief that we cannot see change occur because it occurs as we are acquiring our native language as children. I will address this position in my following discussion.

4.3 CHILD LANGUAGE ACQUISITION: ISOLATING THE TRIGGERS TO CHANGE.

It is certainly no mystery that we acquire language during our childhood years. Although we continue to develop our knowledge of our native language throughout our lives, we can all agree that at some point early in life, we became fluent speakers of our language¹⁷. Aside from the difficulties we may have had with our teachers in English class, we can also probably agree that we learned our language with relative ease. On the contrary however, trying to learn a foreign language as an adult requires a great deal of effort and, even then, only a small majority of adults are successful in obtaining a level of fluency in a foreign language. We all seem to acquire our language around the same time as children, and all adults seem to have a considerable amount of difficulty in learning a foreign language. It seems then that a period exists when acquiring or learning a language is easier, and a later period exists when language learning is more difficult. This period is the critical period that I mentioned earlier with my discussion of Wilhelm von Humboldt (1836). Humboldt noted that "all children, under the most diverse conditions, speak and understand language at about the same age (Humboldt, 1836: 58) Amazingly, over a century and a half later, Steven Pinker, an expert in child language acquisition, notes that even with deaf children, if their parents use sign language, babbling occurs on schedule, but with their hands instead of their

¹⁷ While not everyone makes a distinction between acquisition and learning, I feel it is important to mention that I do not view them as being the same. As Stephen Krashen, an applied linguist, noted for the first time in 1982 with his book Principles and Practice in Second Language Acquisition, learning and acquiring language are not the same. Learning, whether deductive or inductive, is a conscious process. Language acquisition on the other hand is a subconscious process that involves the potential for language that all normal human beings possess (Krashen, 1985: 83 & 113). This is a point of confusion in much literature even today. Many scholars do not make the distinction between language learning and language acquisition.

voice (Pinker 1995: 266). Overall, the ability to acquire normal language is guaranteed for children up to the age of six, is steadily compromised after that until shortly after puberty, and is rare thereafter (239). Let us now examine the acquisition process in somewhat greater detail.

As Pinker discusses in his book The Language Instinct (1995), children are born with an innate ability for language, and come into the world already equipped with linguistic skills (263-64). He goes on to identify and discuss the stages that all children pass through, regardless of which language they speak. Generally speaking, by the age of six months, "babies begin to lump together the distinct sounds that their language collapses into a single phoneme" (264). Between seven to eight months, babbling in real syllables begins, and by ten months, babies do not distinguish sounds in languages other than their own. This period of transition occurs before they begin to understand or produce words (264-65). Shortly before their first birthday, babies begin to understand words, and around the same time, begin producing them, usually in isolation. This one-word stage continues for a period that varies from two months to a year (266). Around eighteen months, language grows at an incredible rate, with a new word being learned every two hours, a rate that the child will maintain through adolescence. Syntax also begins during this period in strings of two words (267-68). Between the late twos to mid-threes, "children's language blooms into fluent grammatical conversation so rapidly that it overwhelms the researchers who study it" (269). The three-year old is a grammatical genius (276) and all languages are acquired before the child turns four (273).

With the above stages of language acquisition, we can see that we become fluent in our language early as children. What is perhaps even more striking, is that we are completely unaware as children that we are acquiring language. As Chomsky discusses in a lecture given in 1986, even children who grow up with more than one language seem to be unaware that they *are even speaking different languages* (Chomsky, 1986: 188, italics mine). He compares language to walking, in that both occur in children naturally without being instructed. Furthermore, he notes that something happens to the brain after puberty that prevents adults from acquiring language like children¹⁸. A language teacher simply cannot teach an adult the way a child acquires language (179).

In sum, with what we know today about child language acquisition and the nature of adult learning, we can arrive at a conclusion beyond pure description, that provides an explanation of how exactly language changes. The explanation to the phenomenon of language change stems from the following apparent facts.

- (1) We acquire language as children.
- (2) Language acquisition is not the same as learning; acquisition occurs subconsciously, whereas learning is a conscious process of obtaining knowledge.
- (3) Acquisition is complete before we reach puberty, and adults simply cannot acquire language like children.

¹⁸ Pinker offers a physiological explanation that has to do with the brain's metabolic rate and the amount of synapses in the brain. Between the ages of nine months and two years, a child has fifty percent more synapses than the adult. This level decreases gradually from the age of two into adolescence, when the brain's metabolic rate falls to adult levels (Pinker, 1994: 289).

Lightfoot (1999) claims that children make unconscious choices determined by a trigger experience which he refers to as the primary linguistic data (PLD) of the child. The trigger, or PLD, must consist only of the kinds of things that children routinely experience and includes only simple structures (66-67)¹⁹. If the process of acquiring language completes itself while we are children, it follows then that any permanent changes to the language system within an individual must occur during that time, and be complete prior to puberty. It makes perfect sense that a change in language will solidify with the child, and remain unnoticed with the child as he or she enters adulthood. So, if change manifests itself within the years of language acquisition, how then does it persist over time? This leads me to my next section, where I will tie together what we have discussed so far and provide an explanation for language change based upon triggers to change occurring during the period of child language acquisition.

4.4 CHILD LANGUAGE ACQUISITION: EXPLAINING LANGUAGE CHANGE

Knowing that changes originate within children does not explain how changes persist and get passed on during the course of time. Moreover, if change originates within an individual, how does it catch on and spread within a community of speakers? In order for change to pass unnoticed, we must first

¹⁹ The idea of limiting the trigger to simple structures is the "degree-0 learnability" of Lightfoot (1989, 1991, 1994) which posits that triggers are limited to elements from non-embedded binding domains. According to Lightfoot, language emerges through an interaction between our genetic inheritance (nature) and the linguistic environment (nurture) to which we are exposed (1999: 52). Although he is referring to the Universal Grammar (genotype) capacity to develop into a particular mature grammar (phenotype), I feel his idea of the trigger being limited to simple structures can also be applied to our capacity to develop phonetic and phonological phenotypes.

recognize that change can only be made in small increments and, although it originates during the phase of acquisition, is something that is passed in language from generation to generation. With this in mind, I believe there is a two-dimensional aspect to language change which I feel is most adequately expressed by the words of Hermann Paul:

The changes in language fulfill themselves in the individual, partly through his spontaneous activity, by means of speaking and thinking in the forms of language, and partly through the influences which each individual receives from others. A change in linguistic usage can hardly be brought about without the *co-operation* of both. The individual always remains exposed to lasting influences from others, even when he has thoroughly absorbed what is the common usage of the language. (Paul, 1891: 15, italics mine)

Here Paul shows what I will call the cooperative aspect to language change, which I view as dynamic system working in two dimensions. Although change begins with the individual, it is only brought about through cooperation within a linguistic community. The change occurs slowly through assimilation into the established language community, who through association and linguistic contact, accept the change (on a *sub-conscious* level) for the mutual benefit of being able to effectively communicate with each other. In a sense, we are dealing with an individual's idiolect, and the change that is brought about, when it reflects a deviation from the already established linguistic norm. With the diagram below in Figure 17, I will attempt to illustrate my concept of how this mutual cooperation between individuals in a community works to bring about the phenomenon of language change. This dynamic system of cooperation is represented by my model below, which I will refer to as the 'cooperative' model of language change:

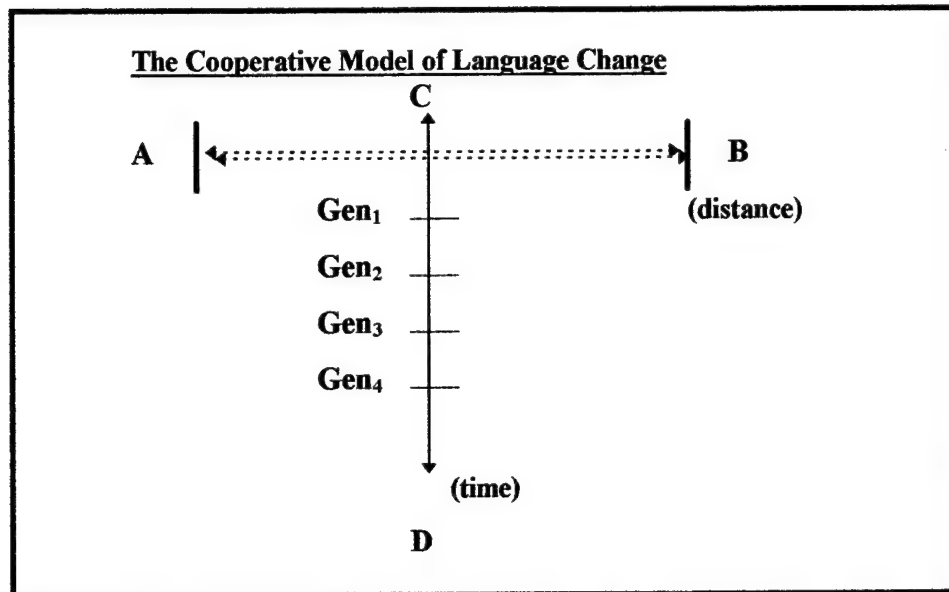


Figure 16: The Cooperative Model of Language Change

Looking at this model, we see that cooperation occurs in two directions. The A-B horizontal axis represents cooperation between members of a given generation of speakers with a linguistic community. Although it extends in both directions, it is limited by the number of speakers that are in physical contact with each other (similar to the wave theory of language change). The A-B axis is also shadowed, which I use to depict the mobile nature of any given A-B generation along the C-D axis. The C-D axis represents vertical cooperation between different generations. This axis also extends in both directions, constrained only by time. I use Gen₁ to represent the youngest generation, and each generation after to represent consecutive parent generations. The further away one generation is from another, the less likely cooperation between them will occur. I use Gen₁-Gen₄ because it is likely that, at the most, only four generations of speakers will exist at any one time

in a given community. Finally, because any change within the system of language cannot be so noticeable and drastic to interfere with the ability to communicate, any noticeable change between two synchronic states in language will most likely complete itself outside the time period indicated by Gen₁-Gen₄.

Let me now discuss in more exact terms how this process works. If we slide the A-B axis upward and place it along Gen₁, and assume that this generation is somewhere between the ages of birth and four (the child-language-acquisition phase of language), the amount of cooperation most likely occurs more with their parents (Gen₂) than with other members of their generation along the A-B axis. Likewise, the amount of cooperation is greater with their parents than with their grand-parents (Gen₃). As the children get older, the amount of cooperation shifts from the vertical axis to the horizontal axis. Cooperation with the parents decreases and the amount of cooperation with members of their generation increases. This shift occurs roughly as the children leave home to attend school, and the amount of time they spend with friends and acquaintances their own age increases²⁰. At this point, any change that originated during the language-acquisition phase, must be adopted within the generation as a whole, sometime before the age of puberty -- this of course will not represent a specific point in time, but instead a range of time for a particular generation²¹. Eventually, the

²⁰ Gen₁ and Gen₂ cooperation is not merely limited to parents and their children. The same cooperation also exists between students and their teachers. Either way, as children enter school, they will communicate more with people around their own age than with those from an older generation.

²¹ Lightfoot notes that children typically acquire the language of older siblings and peers, and not of the parents (1999: 63). This makes perfect sense. In terms of my cooperative model, the acquisition of language will occur within Gen₁ and be complete prior to entering Gen₂.

generation along this A-B axis will age, and the line will move upward and occupy the Gen₂ area. When they move to the Gen₂ area, they then become what I consider the dominant generation along the vertical axis. By dominant I mean that Gen₂ exerts more influence on the societal norm than any other generation, and thus has the greatest impact in establishing the language norm for any linguistic society.

Since language is both an individual as well as a social phenomenon, I will use examples both within language and culture to help illustrate this process. In English for example, there are different words sometimes used by different generations to talk about the same thing. Our grandfather may say he is thirsty and would like a 'soda-water' while mom and dad may ask us what kind of 'soft drink' we would like to have. I might then reply by saying that I am not in the mood for 'coke,' and would rather have my favorite adult-beverage in an ice cold mug. Another generational example can be seen in the way people express satisfaction about something. In the 1950s the term may have been 'that's swell' only to be expressed later as 'groovy,' and finally 'that's cool' to more recent generations. Language changes by generation much like music and style, which both serve as good illustrations of the disparity between generational norms. Reminiscent of the swinging 1950s are 'oldies-but-goodies' music, flat-top haircuts for men, and long skirts for the ladies. With the 1960s came the Beatles, long hair for men, and tie-die shirts. The 1970s belong to the disco generation, a time of bell-bottom pants and heavy eye-shadow. I survived the pop-music fad of the 1980s, a period when it was fashionable for some men to wear more jewelry than women. More recently in the 1990s, I can only wonder at the appeal for rap-music

and the wearing of pants below the belt-line by some members of the younger generation. In sum, all of the changes above occur without us actually seeing them happen at the time. Language change operates the same way. It is easy to compare the differences between two synchronic states after a great deal of time has elapsed, yet it is scarcely possible to witness the change as it occurs.

The gradualness of change is something I feel requires further elaboration. Although Lightfoot discusses syntactic change, he offers an interesting explanation that involves a theory of catastrophic language change. Lightfoot views language change as an aggregate of changes occurring in the individual (1999: 44). He notes that if we focus on change in text, it seems gradual and perceptual, while structural change may in fact occur abruptly (18). Whether or not change is generally gradual "depends on what units of analysis are employed and which lens is used . . . some changes may be small-scale and therefore may appear to be gradual, but appearances can be deceptive" (83). In fact, a catastrophic theory to language change makes sense. If our unit of analysis is the individual, then as Lightfoot states, "abrupt change happens" (83). Change is only gradual in the amount of time it takes to spread through a speech community. As abrupt changes increase within individuals of a speech community, the frequency of individual occurrences increases, then a domino-effect sets off a chain reaction that gradually changes the language as a whole. So how then does an entire speech community converge on a specific change? Individual changes must occur with a frequency great enough to trigger similar individual changes in the next generation of speakers. An element of chance is also involved in the sense that "contingent factors" influence a child's primary linguistic data and make the triggering

experience of the child, different than what the child's parent was exposed to (265). Lightfoot uses Kauffmann's example of a pile of sand as analogous to language change (91-92):

[T]he same sized grain of sand can unleash small or large avalanches. Although we can say that in general there will be more tiny avalanches and only a few big landslides . . . there is no way to tell whether a particular one will be insignificant or catastrophic. (Kauffmann 1995: 29)

In sum, language change, though gradual in the sense that it must pass through a community of speakers and then be passed on from one generation to the next, can indeed be abrupt at the individual level.

Referring now to the discussion in chapter 3, let us now see how we can apply my cooperative model of language change and use it as a template in order to explain sound change in German. Looking at i-umlaut and using umlauted short /a/ as an example of vowel change, we saw how the process of vowel harmony played a key role in bringing about early sound change in German. If we refer back to Figures 6 and 7, we can see how the existence of [æ] created an unstable system, and how the desire for height harmony within the vowel system motivated change. Specifically, the cluster with [e], [æ] and [a] caused confusion in everyday speech and necessitated a change in the system. Referring now to the model above, this change in sound originated with Gen₁, who first heard this cluster of sounds from their parents in Gen₂. The confusion resulting from the cluster of sounds triggers a slight feature change in Gen₁, the raising of the tongue blade, thus producing a more [e]-like sound. As the individuals in Gen₁ become older and begin to spend more time with individuals within their generation, the more [e]-like sound is gradually adopted by a large number of people in the Gen₁ group.

During this time we begin to have a slight difference between Gen₁ and their parent generation Gen₂. Eventually Gen₁ moves upward and becomes Gen₂, with a new Gen₁ beneath them. This process then repeats itself until finally the [æ] sound disappears entirely, leaving only [e] and [a] remaining. This is very much a dynamic process that completes itself through the combination of a series of chain reactions: It operates across generations much like the propagation of a wave after a stone is dropped in a pool of water, while at the same time has a similar domino-effect that occurs within a particular generation of speakers.

Finally, let us now incorporate Universal Grammar into the cooperative model. As I mentioned in the above paragraph, the confusion resulting from the cluster of sounds triggered a slight feature change in Gen₁, the raising of the tongue blade. Lightfoot takes a cue-based approach to acquisition and mentions the notion of parameter setting²² in relation to phonology. With this view, Universal Grammar specifies not only a set of parameters, but for each parameter a cue. As Lightfoot explains:

A cue is some kind of structure, an element of grammar, which is derived from the input. The cues are to be found in the mental representations which result from hearing, understanding, and "parsing" utterances. As a child understands an utterance, even partially, he or she has some kind of mental representation of the utterance. These are partial parses, which may differ from the full parses that an adult has. The learner scans those representations, derived from the input, and seeks the designated cues . . . The child's triggering experience, then, is best viewed as a set of abstract structures manifested in the mental representations which result from parsing utterances; some of those representations represent partial parses,

²² Universal Grammar uses the notion of parameters which can be viewed much like a light switch as having on/off features. In terms of this example and the raising of the tongue blade, the parameter we are dealing with is the feature of height. The *relative* position of tongue blade changes from the feature [-high] to [+high].

which lack some of the information in the mature, adult, parses. (1999: 149)

In phonological terms, the child then receives a certain mental representation of the sound, resulting from what he hears and understands from the utterance. During the child's triggering experience, the [æ] sound is heard and understood as the underlying phoneme /e/. We then begin to have a difference between Gen₁ and the parent generation, Gen₂. The process then continues and completes itself in accordance with the cooperative model of change in the manner I describe above, until the [æ] sound disappears entirely leaving only [e] and [a] remaining.

Chapter 5: Concluding Remarks

My goal with this paper has been to attempt to arrive one step closer to solving the mystery of language change. I began by first examining the origins of linguistic theory and the pioneering work conducted by our predecessors. This helped me not only to better understand the work of our contemporaries, but also opened my eyes to questions and answers overlooked by linguistics in the 20th century. This serves to illustrate a valuable lesson for students of linguistics. If we know that a story cannot pass a few times from mouth to mouth and maintain its integrity, neither can language pass from generation to generation and maintain its original form. This thought can also be applied to linguistic theory, for the stories told by linguists often get misinterpreted or lost through the passage of time. As students of language, it serves our best interest not to neglect the original works that serve as the foundation to modern theory, and ultimately define our work in the field today. While sometimes the answers provided by our predecessors may be wrong or misguided, the questions asked can themselves serve to guide us toward the right answers and correct methods. For even though Chomsky revolutionized linguistics with his generative theory, even he read and learned from the original works of Wilhelm von Humboldt (1836) and René Descartes (1637)²³. Ultimately, to be successful in the field of linguistic science, we need to abandon

²³ In fact Chomsky (1966) devotes much of his entire book, *Cartesian Linguistics*, to the ideas of Descartes. In this book, Chomsky also quotes: "The domain of language is infinite and boundless . . . the fundamental property of a language must be its finitely specifiable mechanisms for an unbounded and unpredictable set of contingencies" (20). This basic tenet to generative theory that he addresses in his book is taken directly from the writings of Humboldt.

our horse-with-blinders perspective and be willing to examine early work as well as the new, and also be willing to consider more than just one perspective or one approach.

I completed my examination of early linguistic theory and proceeded to discuss sound change in German. By examining the work of others over the years, we were able to obtain a rather clear picture as to how sound change occurred with i-umlaut and the Second Sound Shift. The recent work conducted by Howell and Salmons on i-umlaut along with the work conducted by Iverson and Davis on the Second Sound Shift provide clear examples of how synchronic and diachronic study of language must work hand-in-hand. By assuming an atomistic approach to language change, I then proceeded with my ideas on how language changes using child language acquisition theory. I proposed what I call the cooperative model to language change and used it as a means for understanding how language change in general happens. My model advances us beyond pure description into the realm of explanation. My ultimate goal was to provide an understanding as to how and why change in language occurs over time. By seeing that change originates in individuals and is then passed on through speech communities, from one generation to the next, we can now understand why language change is a phenomenon that occurs in a way that does not allow us to observe it while it is happening.

We finally looked at the most recent work on language change and child language acquisition theory by David Lightfoot. There can be little question as to his major impact in the field of linguistic study. Lightfoot has singularly advanced the diachronic study of language perhaps more than any other linguist of our time.

Although his focus is on syntactic change, his cue-based approach to language acquisition can be used to provide answers to all areas of diachronic study. His work propels us into the new millennium one step closer to the answers behind the mystery of language change. As he states: "To explain language change, it seems to me that one needs nothing more than (a) an account of how trigger experiences have shifted and (b) a theory of language acquisition that matches primary linguistic data with grammars in a deterministic way" (1999: 225). This is exactly what I hoped to have accomplish with this paper, only instead of looking at grammatical change, I used sound change as the basis for my explanation.

In working toward an explanation of language change I intentionally avoided an attempt to answer the question of when language changes. While my cooperative model of language change suggests when changes occur in a general sense, it cannot be used to answer the question of when, in an exact sense, language changes. I avoided the question for a specific reason: the term *when* implies an element of predictive power. As Lightfoot sates, "language history is certainly contingent and subject to accidents of environmental influence and idiosyncrasies" (1999: 264) . . . "predicting final outcomes -- or indeed anything beyond the very short term -- becomes impossible" (258). Lightfoot claims that prediction is possible, in principle, only in that one can predict that a child will converge on a certain grammar when exposed to certain environmental elements (265). Linguists, according to Lightfoot:

will become wise when they realize that there are no historical laws to predict the future, long-term developments of languages, but that, with the right kind of theory of variation and acquisition, we can understand particular changes and explain them as they happen . . . We can say nothing

about distant end results of language change; but we can offer interesting explanations of changes as they take place, in the fashion of a weather forecaster (267-68).

Explanation of language change is well within our grasps, but prediction is simply not possible.

Those before us have laid a solid groundwork from which we can base our studies, and advances have definitely been made since the pioneering work of our predecessors over a century ago. Although we may yet be a considerable distance away from the answers we are looking for, the pursuit will continue and the results of our endeavors will remain an interest for students and scholars alike. Even if our efforts sometimes lead to incorrect conclusions, I believe linguists will continue to ask the right questions and, ultimately, find a number of answers. The questions that remain may be many, but with each passing day, we move one step closer to understanding the varied phenomena of language change.

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Vita

Kevin Michael Volk was born in El Paso, Texas on 16 December 1967, the son of Earl Walter Volk and Erika Volk. After completing his work at Parkland High School, El Paso, Texas, in 1985, he entered the United States Military Academy at West Point, New York. Majoring in Russian and German, he received the degree of Bachelor of Science from the United States Military Academy in May, 1989. During the following years he served as an infantry officer in the United States Army. His assignments included tours of duty with the 82nd Airborne Division, the 75th Ranger Regiment, and the 1st Armored Division. A veteran of Desert Storm, Kevin Volk also served in peace-keeping operations in the Former Yugoslav Republic of Macedonia, and later commanded two companies while conducting peace-enforcement operations in Bosnia. His awards and decorations include the Bronze Star Medal, Meritorious Service Medal, Order of Saint George, the Combat Infantryman Badge and the Ranger Tab. In August 1997, he entered The Graduate School at the University of Texas. His next assignment will be at the United States Military Academy, where he will serve as an instructor in the Department of Foreign Languages.

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